Connection

Novell Connection Magazine
FIRST QUARTER 2006 VOLUME 17 NUMBER 1

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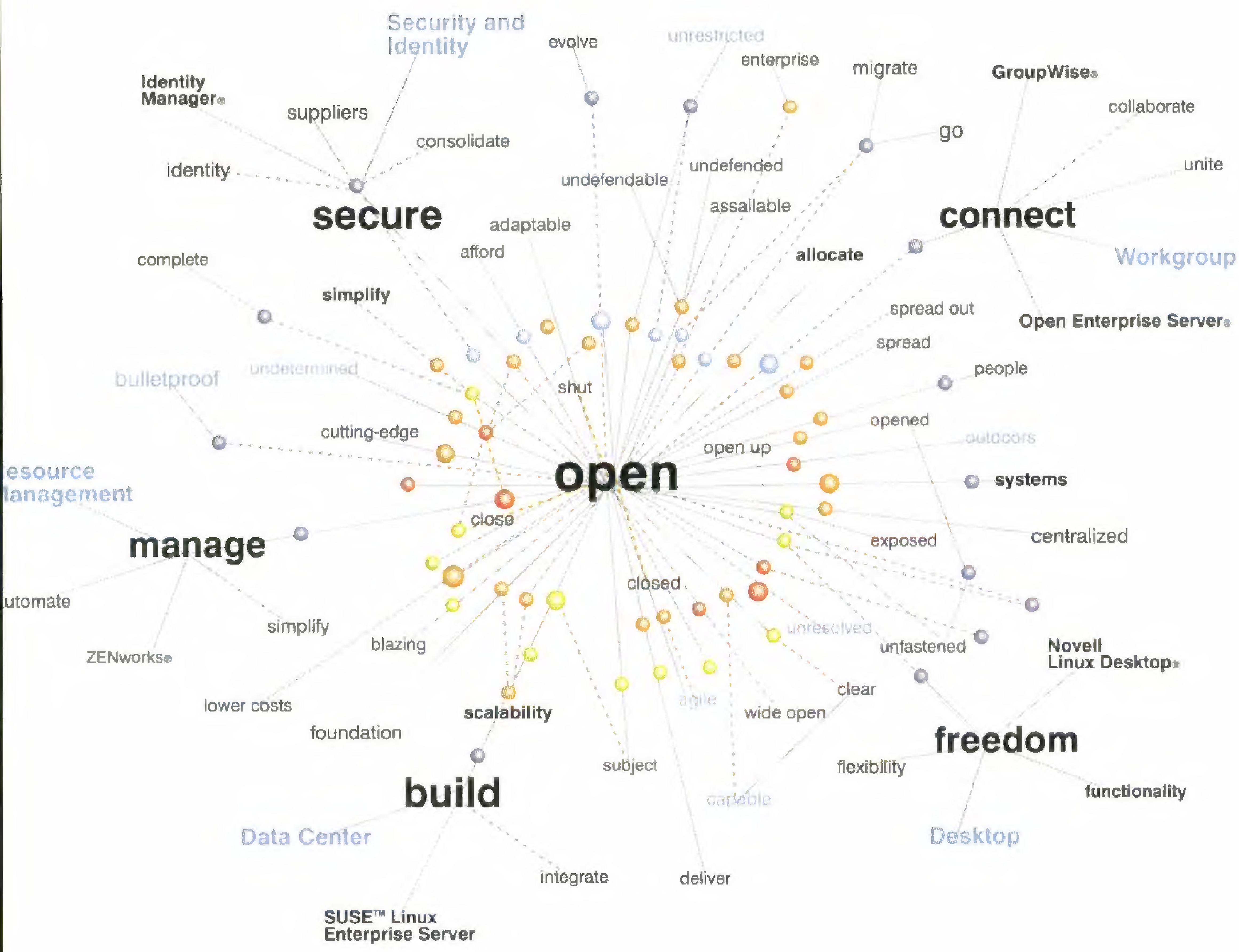

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Cover Story

06

IDENTITY ROBBED BLIND? VICTIMIZATION BY DIGITAL CLONING By the time he was 18, Frank Abagnale, the legendary scam artist of *Catch Me If You Can* fame, flew around the world on someone else's identity—for free. So what are you doing to keep your identity safe? And what about those you call your customers? What are you doing to keep their identities secure from the likes of Abagnale?

BY LAURA CHAPPELL

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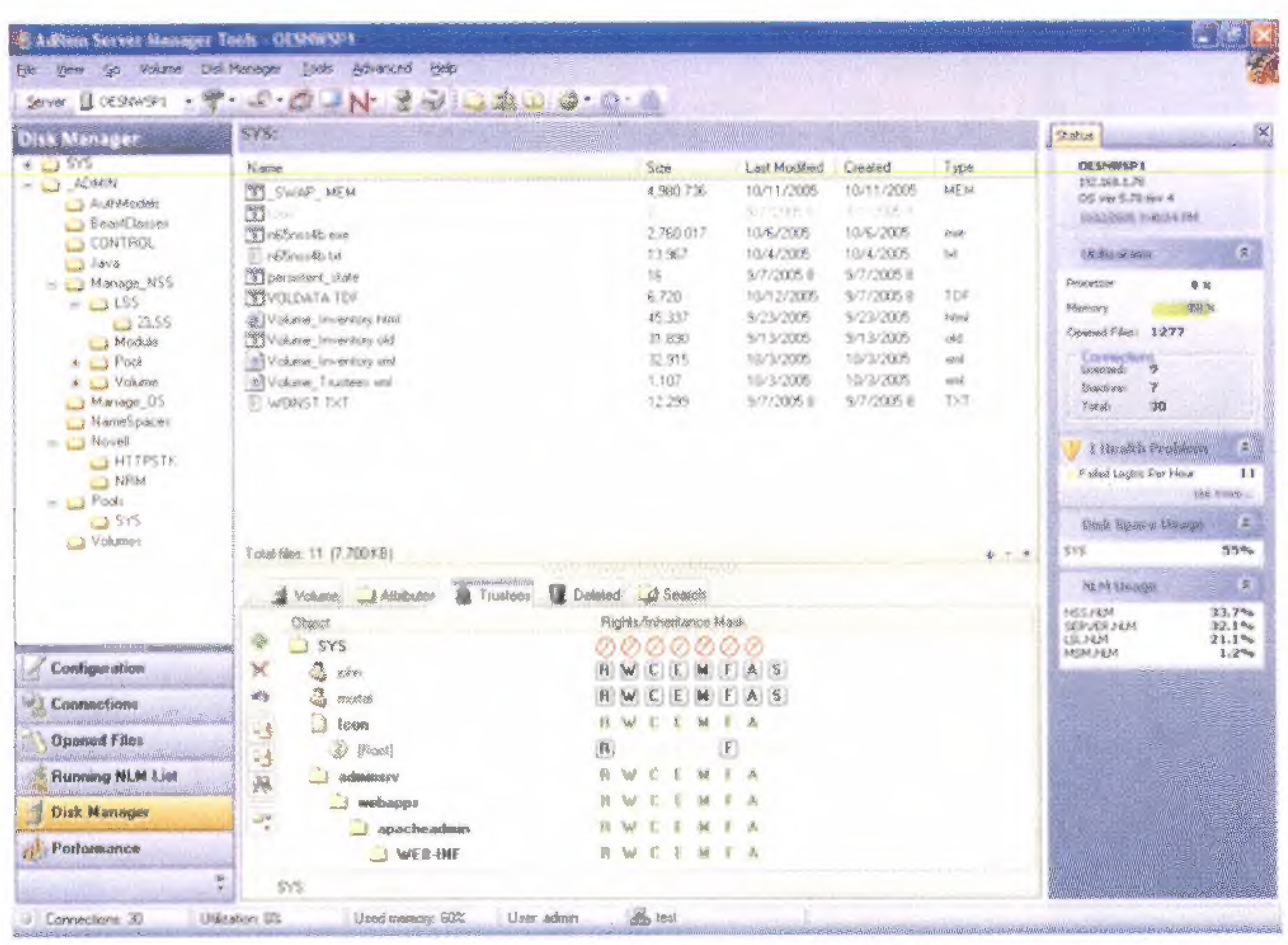

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Lost Your Identity to a Hacker?

All of us have personal identity information that we don't want published. That information is held by multiple companies and ranges from credit card and social security numbers to medical records and insurance policies. You'd be surprised what they know about you. Have you ever wondered what really happens to your credit card number when you hand your card to your waiter? Is he the only one who sees your personal information? Can you really trust him with it? What about the cashier in the hotel lobby? And that Web site where you made your last purchase? Are they protecting your personal identity? Do those companies have processes in place to keep your personal information confidential?

As your identity is important to you, your customers' identities are important to them. Are you protecting your customers' identity information? Well, the laws say you had better. If your company captures customer information of any kind, it's increasingly your responsibility to protect that data. A steady stream of legislation—THE EUROPEAN UNION DATA PROTECTION DIRECTIVE, GOVERNMENT INFORMATION SECURITY REFORM ACT, SARBANES-OXLEY, HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT (HIPAA), GRAMM-LEACH-BLILEY AND OTHERS—puts constant pressure on you to keep that data secure.

So how can you protect yourself and your company from privacy breaches caused by identity theft? In *Identity Robbed Blind*, Laura Chappell shares some staggering statistics that show why you must be aware of—and guard against—identity theft. For the fifth year in a row, identity theft was the top consumer fraud filing with the US Federal Trade Commission totaling almost 250,000 cases during 2004. And those are only identity thefts in the US! You need to know your company is not involved in those cases.

Laws provide for significant financial penalties for violations. For example, HIPAA violations could cost you $250,000 and up to 10 years in prison for wrongful disclosure of individually identifiable health information. This article explains several ways you can protect yourself—and your company—from identity hackers.

The Novell development teams have been hard at work to release new versions of three Novell products:

1 *SECURE LOGIN 6.0* 2 *IDENTITY MANAGER 3.0* 3 *AUDIT 2.0*

Check out *Password* to find out about the new Secure Login. *Who What When Where* explains the latest version of Identity Manager. And *Aud-it* explains how Novell made something great even better—Novell Audit 2.0.

And GroupWise has some exciting developments too: it now ships with Intellisync technology in the box so you can sync the vast majority of your company's wireless devices to GroupWise. You can also get support for all those Blackberries floating around out there. Read *article* to find out all about it.

THE NEW GLOBAL BRAINSHARE 2006 IN SALT LAKE CITY PROMISES TO BE THE BEST YET. With more than 20 years in the making, read *A Fresh Twist on an Industry Favorite* to find out how Novell is pushing the limit and how you can be a part of it.

And now there's even more to be a part of. With its move to Linux, Novell has become the open source leader. Many of you have asked what that means to you and how you can get a piece of the action. *Go Ahead. It's Open* tells you how you can get involved in that action. It's easy. So dive in. There's enough to go around.

If you have anything on your mind or want to talk back to us, we'll always listen. E-mail the editor at *editor@novell.com* and as always, enjoy this issue of Novell Connection.

Ron Hovsepian
PRESIDENT & COO, NOVELL INC.

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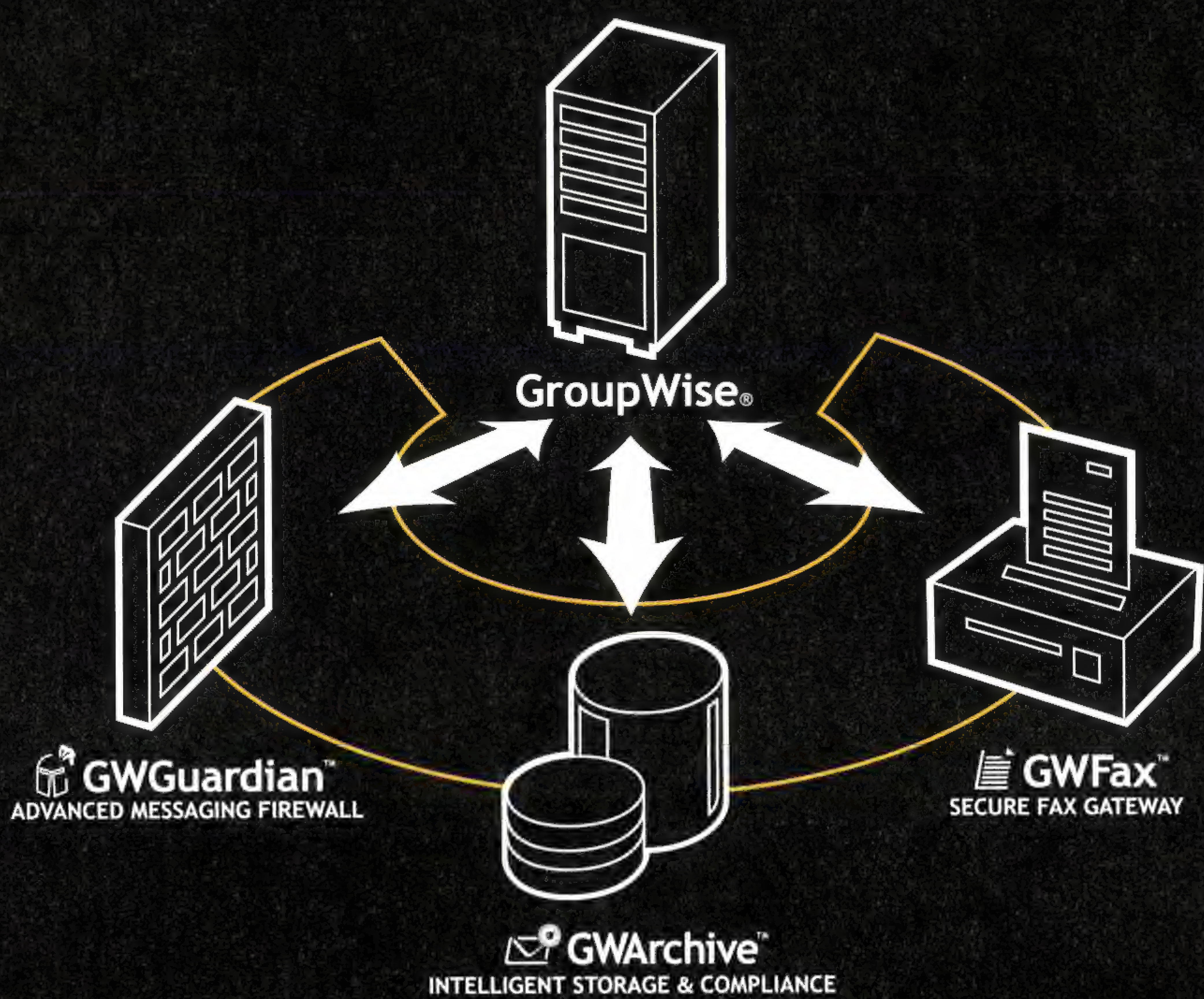

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Identity Robbed Blind?

Victimization by Digital Cloning

By Laura Chappell

PanAm estimated that between 16 and 18 years of age, Frank Abagnale flew more than 1 million miles for free and visited over 26 countries.

Frank Abagnale's identity scams are legendary. The subject of the Steven Spielberg movie, Catch Me If You Can, Frank Abagnale used common sense, bravado and adaptability to manipulate his identity to suit his needs. Today I imagine he would delve into the world of digital identity theft, color printers and home laminators rather than use the PanAm decal off a model plane as he did at age 16.

How rampant and problematic is the issue of identity theft? How is identity theft perpetrated? How can we protect ourselves and our corporations from privacy breaches caused by identity theft?

As I am writing this article, I must admit that I am a bit distracted after just winning the InfoDiamond International Sweepstakes! And not just once, but three times in just one month! At least that's what the e-mail said. I mean really—what are the chances of that? Unfortunately I'm really pressed for time to collect my winnings because eBay just sent me a message asking me to log in immediately and provide a credit card number to update my account or they will cancel it. Thank goodness I got that Microsoft all-in-one security update so my computer is protected against any kind of security breach. I'd hate someone to find out that I'm so lucky; they might try to scam me out of my winnings. Then how could I help that poor man in Nigeria get his money?

Sometimes in the technical world, we have to just roll our eyes at some of these blatent phishing schemes. Who really falls for these things? Well, unfortunately on a global level, millions of people fall victim to these schemes each year. These scams may be focused at a quick fraudulent monetary gain or they can be geared toward obtaining enough personal information about a target to open or manipulate accounts under that person's identity—identity theft.

The United States Federal Trade Commission (FTC) defines identity theft as a fraud that is committed or attempted, using a person's identifying information without authority.

How do these folks get your identity information? You'd never type in your credit card details or any other personal information on a public computer, right? Makes you feel a lot safer, doesn't it? Unfortunately, you still have your backside hanging out in the wind—your personal data is maintained by numerous credit card companies and financial institutions. Your credit card numbers are seen every month by online retailers, gas station cashiers, waiters and waitresses, travel agents and even taxi drivers. You race to the ATM and blithely punch in your PIN number while that sweet looking girl next to you talks on the phone and shoulder surfs the PIN number you type in; she'll grab your ATM card later at the bar, although someone else may already have it from the false-front ATM machine you just used.

The CardSystems case should have taught us a lesson: we cannot directly protect our own information anymore. More responsibility lies on the shoulders of the corporations that enter, revise, update, sort and search through our identity information.

How difficult would it be for someone to reach into your mailbox or garbage can and snag one (or tens) of those credit card offers that come to you every day?

Identity theft plagues the credit card industry like network problems plague hacker conferences!

> ID Theft is Hot!

Identity theft is on the rise at an alarming rate, sitting at the top of the Federal Trade Commission annual list of consumer fraud filings for the fifth year in a row. (SEE TABLE BELOW.) When the FTC categorized the 635,173 complaints received in 2004, 246,570 were identity theft reports and 388,603 were fraud complaints. (The FTC releases this yearly report in January or February at *www.consumer.gov/idtheft.*)

Other findings from the report include:

- Identity theft reports and fraud complaints totaled more than US $547 million.

The Shadowcrew Case

"Shadowcrew.com" was one of the largest online centers for trafficking stolen credit and bank card numbers and identity information. Closed in October 2004 by the U.S. Secret Service, Shadowcrew trafficked in at least 1.5 million stolen credit and bank card numbers that resulted in a loss in excess of $4 million. Of the 21 individuals arrested in this case, 12 have pled guilty as of November 17, 2005. One defendant admitted that in September 2004, he illegally acquired approximately 18 million e-mail accounts with associated user names, passwords, dates of birth, and other personally identifying information—approximately 60,000 of which included first and last name, gender, address, city, state, country and telephone number.

The top categories of FTC-reported consumer fraud complaints for 2004 include:

Category	*Percent*
Internet Auctions	16
Shop-at-Home/Catalog Sales	8
Internet Services and Computer Complaints	6
Foreign Money Offers	6
Prizes/Sweepstakes and Lotteries	5
Advance-Fee Loans and Credit Protection	3
Business Opportunities and Work-at-Home	2
Telephone Services	2
Other (miscellaneous)	12

- Internet-related complaints accounted for 53 percent of all reported fraud complaints with monetary loss calculated at more than US $265 million.
- Credit card fraud was the most common form of reported identity theft, followed by phone or utilities fraud, bank fraud and employment fraud.
- The major metropolitan areas with the highest per-capita rates of reported identity theft were Phoenix-Mesa-Scottsdale, AZ; Riverside-San Bernardino-Ontario, CA; and Las Vegas-Paradise, NV.

> Keylogging and Site Validation Techniques

OK, we all know how people get conned through e-mail and how credit cards can be run through skimmers that duplicate the magnetic strip. But what if you are tech savvy? Are you less likely to have your ID stolen? Not necessarily. Consider the Kinko's Keylogger case where strategically placed keyloggers captured everything typed into public computers.

What can you do if you are using a public computer and you absolutely must enter a password or passcode? (I can't imagine a scenario where you have to do this, but let's just say you do for a moment.) And how do you know if keylogging software is installed?

Many of today's virus detection tools automatically detect and remove known keylogging software; but of course, this is always a game of "follow-the-hacker."

One of the world's largest financial companies, ING, introduced a feature called PIN Guard to help thwart these keyloggers when customers log in to do banking transactions. Instead of typing in their PIN number, which would be caught by a keylogger, the customer uses a mouse to select the numbers and characters off the screen—a good idea unless someone is shoulder surfing your password.

Financial institutions are scrambling to put solutions in place that verify authorized users are accessing their accounts. Bank of America recently introduced Sitekeys as a method to identify the computer the customer is using to log in. (Most users consistently log in from the same computer when doing online banking.)

The Sitekey technology asks the user to select an image that will be displayed to indicate that the bank site has done some behind-the-scenes authentication of the user's computer. If the user approaches the login screen and the image is not correct or not displayed, the user is prompted with a series of questions in an attempt to positively identify them. The SiteKey technology was put in place to differentiate the true Bank of America Web site from bogus sites that might present a mocked-up login page to the user to capture account numbers and passwords.

> Indications of Identity Theft

Most cases of identity theft are recognized by the consumer first. Some signs to watch for are:

1 unusual phone calls from creditors
2 getting turned down unexpectedly for credit
3 unusual credit card charges
4 account names or passwords not working
5 missing bills and statements
6 unusual entries in your credit records

> Protect Yourself; Protect Your Company

At some point it is inevitable—you'll have a credit card stolen or fraudulently used in your name. Here is a list of additional steps you can take to protect yourself:

1 One of the best ways to protect yourself is to monitor your credit reports on a regular basis. (Consider signing up for a service to track changes on your credit report and automatically notify you of those changes.)
2 Shred credit card offers and financial information before throwing it away.
3 Get a safe and store checkbooks, bank statements, social security information, billing information and any other identity-related information out of sight.
4 View your electronic bank statements on a regular basis—at least twice a month.
5 Avoid giving out your social security number.

Now what about your company? Protect it and yourself by securing all identity-related information, including both employee information and customer information. You need to protect both your original and backup data sets. You have a lot riding on the line:

- Limit access to all confidential information and log who accesses it.
- Run log reports and review them with your staff.
- Reconsider who should have access to sensitive information. Do the right people have access? Can too many people access it?
- Consider auditing the entire network to look for unauthorized software and hardware, and for security vulnerabilities.
- Educate your users on the issues of identity theft and their responsibility to maintain the confidentiality of identity-related information.

If Frank Abagnale was interested in stealing an identity today, I imagine he would have a field day getting a temporary job in a company that maintains sensitive identity information. Does your company? He would have the latest and greatest laptop computer with wireless antennas to boost the signal. That would allow him to listen in on unsecured communications at the local Starbuck's and McDonald's hot spots. Trolling around on the Internet, he would find a plethora of information about you, me and anyone else he wants to research. I'm just glad he's now on the law enforcement side. Now, if you'll excuse me, I need to reply to eBay and that poor Nigerian man that needs my help getting his money out of that foreign bank. Maybe there really is something in it for me. Imagine me—a millionaire! N

U.S. Identity Theft Reporting

If you think you're the victim of any type of identity theft, don't wait to check it out and report it. Call the fraud units of the three principal credit reporting companies.

Equifax
- To report fraud, call (800) 525-6285 or write to P.O. Box 740250, Atlanta, GA 30374
- To order a copy of your credit report ($8 in most states), write to P.O. Box 740241, Atlanta, GA 30374, or call (800) 685-1111.
- To dispute information in your report, call the phone number provided on your credit report.
- To opt out of preapproved offers of credit, call (888) 567-8688 or write to Equifax Options, P.O. Box 740123, Atlanta GA 30374

Experian (formerly TRW)
- To report fraud, call (888) EXPERIAN or (888) 397-3742, fax to (800) 301-7196, or write to P.O. Box 1017, Allen, TX 75013.
- To order a copy of your credit report ($8 in most states): P.O. Box 2104, Allen TX 75013, or call (888) EXPERIAN.
- To dispute information in your report, call the phone number provided on your credit report.
- To opt out of preapproved offers of credit and marketing lists, call (800) 353-0809 or (888) 5OPTOUT or write to P.O. Box 919, Allen, TX 75013.

Trans Union
- To report fraud, call (800) 680-7289 or write to P.O. Box 6790, Fullerton, CA 92634.
- To order a copy of your credit report ($8 in most states), write to P.O. Box 390, Springfield, PA 19064 or call: (800) 888-4213.
- To dispute information in your report, call the phone number provided on your credit report.
- To opt out of preapproved offers of credit and marketing lists, call (800) 680-7293 or (888) 5OPTOUT or write to P.O. Box 97328, Jackson, MS 39238.

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All Eyes on ITV

UK Broadcaster Standardizes a Diverse Environment

By Liz Tanner

ITV is the largest commercial broadcaster in the UK, watched by nearly 45 million people each week. With the largest programming budget in Europe, ITV shows nearly 6,000 hours of original programming each year.

> Challenge

ITV was formed several years ago as the result of a merger between Carlton TV and Granada. As a result, the company had a variety of platforms, including 50 different UNIX systems, which were expensive and difficult to maintain. Updates for a range of legacy software and hardware were either costly or non existent.

The IT staff was struggling to simplify and standardize its diverse environment and maintain consistent uptime. A major goal for ITV was to consolidate and simplify its infrastructure for 6,000 users across 90 locations in the UK, U.S., Germany and Australia.

> Solution

ITV selected a number of Novell solutions as key components of its new infrastructure including SUSE Linux Enterprise Server, Novell Open Enterprise Server, a Novell identity and access management solution, and Novell ZENworks.

"We chose SUSE Linux Enterprise Server because it offered the best overall package of support, a stable distribution of Linux and a long-term relationship with a trusted partner," said Nick Leake, Director of Operations and Infrastructure at ITV. "The Novell direction around Linux is second to none. We found that the combination of training, managed software releases and support was superior to what we could get elsewhere."

ITV began migrating all of its UNIX data center systems to SUSE Linux Enterprise Server, replacing expensive servers with low cost, Intel based hardware. The company runs many of its mission-critical applications on Linux, including many UNIX and Oracle systems, with significantly better uptime to keep business applications available at all times.

"For us, running Linux in our enterprise data center makes a lot of sense," said Leake. "It provides us with high levels of reliability and performance, as well as a low running cost. We can't beat it."

ITV is realizing substantial cost savings by consolidating its servers. With the resulting space savings, the company can create scaled-down data centers at fewer locations. ITV is also reducing licensing costs by having fewer servers that are dedicated to specific systems, such as its Oracle databases.

Novell Open Enterprise Server will allow ITV to consolidate even further with the ability to run file, print and mail servers on Linux. With Open Enterprise Server, the company can take advantage of trusted Novell services on a cost-effective platform. ITV is also considering Novell Linux Desktop for many of its users.

"We are very comfortable running enterprise systems on Linux and have been considering Linux on the desktop for quite some time," said Ben Goodyear, Head of Infrastructure at ITV. "We believe we can cut costs while offering the same user functionality. That is partly because Novell has done a good job of application distribution with Novell Linux Desktop."

A Novell identity and access management solution helps ITV secure and manage user identities. All user identity information resides in Novell eDirectory, while Novell Identity Manager automatically synchronizes information across diverse applications. Linking applications to eDirectory helps automate many business processes, such as HR services, and enhances security by giving users access to the right information based on their roles in the organization.

"Novell identity management solutions are the most scalable within the industry and can handle well in excess of the number of identities we will need to manage," said Leake. "We are able to provide secure access to the freelance producers and camera operators who move through our organization on a regular basis."

ITV uses Novell ZENworks to standardize its workstations and manage 600 applications across a dispersed enterprise. The IT staff can now deliver new applications enterprise-wide in a matter of hours. ZENworks ties into eDirectory so ITV can deliver personalized desktops to users, based on their roles within the organization.

"We found that Novell ZENworks was superior to anything else in the marketplace," said Leake. "It is an invaluable tool for a centralized IT staff like ours."

"For us, running Linux in our enterprise data center makes a lot of sense. It gives us high levels of reliability and performance, as well as a low running cost. We can't beat it."
Nick Leake *Director of Operations and Infrastructure* **ITV**

> Results

By standardizing and consolidating its infrastructure with SUSE Linux Enterprise Server, ITV has created a high performing and resilient environment. The organization is seeing substantial performance gains with several of its mission critical systems and has close to and in excess of 99.999 percent uptime for its production environment.

Novell Open Enterprise Server running on SUSE Linux allows ITV to further consolidate file, print and mail servers to simplify IT management, while significantly reducing hardware and software costs. A standardized environment has also simplified IT training, allowing ITV to focus primarily on Linux, rather than splitting its training across multiple platforms.

"Without a Novell Linux solution, we would have had some difficult decisions to make," said Leake. "We would have had to choose an alternate platform that would not have offered the same level of scalability across our enterprise, or the same degree of performance and cost savings." **N**

TREND-
TALK

Xen and the Art of Virtualization

Competitive Intelligence & Research Group

By Bill Claybrook

The concept of virtualization — "partitioning" a machine into multiple virtual machines (VMs) to support concurrent execution of multiple operating systems — has been around for some time. Virtualization comes in the form of hardware or software. IBM introduced virtual hardware in the 1960s with System 360/67 technology and has continued to develop software virtualization technology around its z/VM mainframe operating system. Today, the primary thrust for virtualization software comes from Microsoft, VMware and the Xen open source project (for x86 and x64 hardware).

Virtualization is one of the hottest topics in all of IT. The reason? Each VM can run one or more workloads, and multiple VMs can be hosted on a single server thereby improving server utilization, reducing hardware costs and potentially software licensing costs. The utilization of UNIX servers is typically about 15–20 percent, and some machines, typically Windows machines, are underutilized because they are often configured to run only one application.

IDC predicts that spending around virtualization activities will grow to nearly $15 billion worldwide by 2009[1]. Most of this spending will be on hardware to run virtualization software. IDC also predicts that more than 75 percent of all companies with over 500 employees are deploying virtual servers—servers that run virtualization software. S/390, OS/400 and UNIX systems account for most of the customer spending on virtualized servers today, but virtualization on x86/x64-based Linux and Windows systems is expected to account for much of the future spending.

> Virtual Machine Architectures

Software virtualization is generally implemented via a layer of virtualization software, sometimes referred to as a VM monitor (VMM), that presents the illusion of many VMs. A VM consists of a guest operating system, one or more installed applications, management tools, virus-detection software and other tools. Each VM has some or all of the functionality of the host computer, and the guest operating system uses drivers and other functionality from the host operating system.

The partitioning of a machine to support concurrent execution of multiple operating systems poses several challenges:

- VMs must be isolated from one another.
- It is important to support a variety of different operating systems to accommodate the heterogeneity of popular applications.
- The performance overhead introduced by virtualization should be as small as possible.

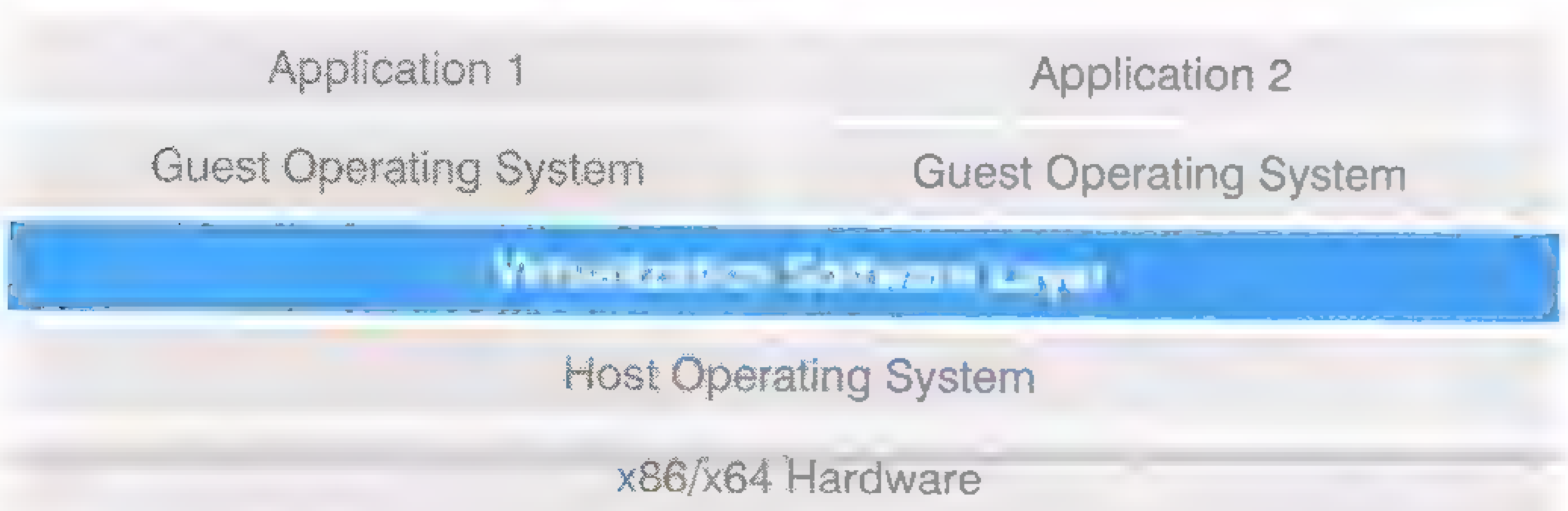
The predominant VM architecture today is depicted in FIGURE 1[2]. The virtualization software layer manages resources between the host and guest operating systems. Open source Xen 2.0 and Microsoft Virtualization Server 2005 are examples of the virtualization software layer.

FIGURE 2 presents a hypervisor based VM architecture. Xen 3.0 is an example of the hypervisor technology. A hypervisor is virtualization software that is integrated with a host operating system, such as Linux or Windows. In a hypervisor based environment, the hypervisor would be booted first followed by the associated host operating system. The hypervisor can be viewed as sitting on top of the hardware and virtualizing resources such as CPU and memory for VMs.

> Virtualization Implementations

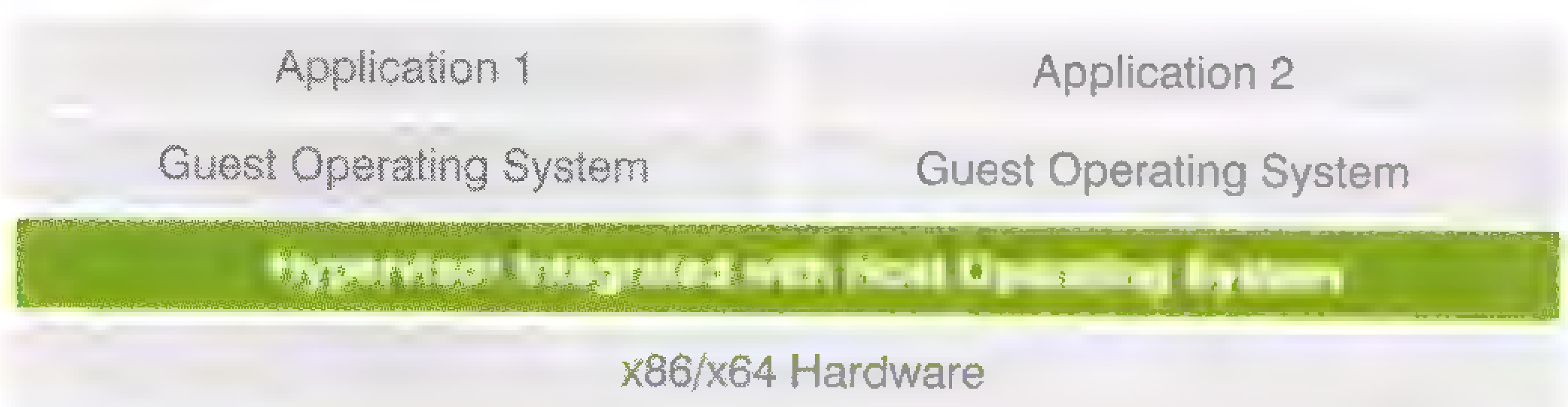
In a traditional implementation of virtualization, a VM has all of the functionality of the host computer. This is referred to as full virtualization. It has the advantage that guest operating systems do not have to be modified. VMware ESX Server is an example of a full virtualization implementation. But there are some issues: certain operating system supervisor instructions must be handled by the VMM for correct virtualization, possibly resulting in a high performance cost for some operations such as creating a new application process.

Figure 1. Virtual Machine Architecture



Source: Novell, Inc. December 2005

Figure 2. Hypervisor-based VM Architecture



Source Novell, Inc. December 2005

Another approach to virtualization is referred to as paravirtualization. Paravirtualization avoids the performance drawbacks of full virtualization by offering a VM abstraction simi lar to, but not identical to, the underlying hardware. The general approach to paravirtualization requires that guest operating systems be modified prior to runtime. This approach prohibits independence of the guest operating system and virtualization software layer; however, modifications aren't required for the applications. The Xen hypervisor is based on paravirtualization.

> Virtualization Assists from AMD and Intel

Intel and AMD are providing a set of hardware enhancements: Virtualization Technology (VT) and Pacifica[3], respectively, that can help improve virtualization solutions on appropri ately configured systems. In current processor architectures, all software runs in one of four privilege rings (ring 0 through ring 3). An operating system traditionally runs in ring 0, and applications typically run in processor ring 3.

Because the virtualization software layer must have privileged control of platform resources, the usual solution prior to, say VT, is to run the layer in ring 0, and the guest oper ating system in less privileged rings such as ring 1 or ring 3. Without elaborating, VT basically creates the impression that guest operating systems are running at processor ring 0 with the virtualization software layer underneath at ring 1.

> Conclusions

Competition in the virtualization software market has already begun to heat up with vendors rac ing to make changes to their virtualization licensing in attempts to remain competitive. Novell has the simplest virtualization policy as well as pricing that is lower than Microsoft and Red Hat. Its virtualization licensing policy has been in effect since August 2004 when SUSE Linux Enterprise Server 9 was introduced, and using one or more virtual images on a physical proces sor or server does not alter the SUSE Linux Enterprise Server 9 licensing policy. For example,

- If VMware virtualization software is hosted on Windows Server 2003 on a two-processor server, then one or more copies of SUSE Linux Enterprise Server 9 can run as guest operating systems at the cost of one subscription for SUSE Linux Enterprise Server 9 on a two-processor server.
- If SUSE Linux Enterprise Server 9 is hosting Xen, then any number of SUSE Linux Enterprise Server 9 guests can run for the price of a single SUSE Linux Enterprise Server 9 subscription on that server. That is, one subscription will cover the host SUSE Linux Enterprise Server and any number of guest SUSE Linux Enterprise Server operating systems.

Not only does Novell have the simplest and least expensive virtualization policy, it is ahead of Microsoft and Red Hat in delivering the new hypervisor technology. Novell will have a support ed preview of Xen 3.x hypervisor technology in SUSE Linux Enterprise Server for selected enterprise customers in January/February 2006 and ship Xen 3.x with the next release of SUSE Linux Enterprise Server. Red Hat will ship Xen 3.x hypervisor technology integrated with RHEL 5 about six months later than Novell, and Microsoft will not have hypervisor technology available until the second release of Windows Longhorn Server in late 2008 or 2009. N

[1] IDC Press Release, October 18, 2005. Increasing the Load: Virtualization Moves Beyond Proof of Concept in the Volume Server Market. (www.idc.com/getdoc.jsp?containerId=prUS00259905).

[2] The architecture in Figure 1 is sometimes referred to as the prehypervisor VM architecture

[3] The Xen project team is collaborating with Intel and AMD to optimize their virtualization products to take advantage of VT and Pacifica

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By Steve DuScheid and Randy Britton

A$$et Management

Concerns about complying with software license agreements have plagued IT managers for as long as software has been around. The protection of intellectual property rights is a fundamental tenet of the software business. Industry watchdogs, such as the Business Software Alliance (BSA) and the Software and Information Industry Association (SIIA), are placing a renewed emphasis on enforcement, collecting hundreds of thousands of dollars in settlements and fines on a regular basis. And software vendors, often through third-party firms, are more active than ever in conducting audits of their customers.

Despite much of the high-minded talk from these watchdogs about honesty and staying legal, many analysts and pundits say the current software license compliance campaigns are really a ploy by software vendors to generate additional revenues in a saturated market. Software vendors may generate revenue by forcing customers to "pay up" after an audit or even suggest that they move to more costly volume license programs with fewer tracking requirements. Regardless of the motives of software vendors, organizations need to take their compliance status seriously to avoid the very real risks associated with noncompliance, such as fines and embarrassing public relations that often accompanies software piracy.

> Who Are the Auditors and Where Do They Get Their Authority?

In the United States, the basis for enforcing license agreements stems from the copyright provision (Title 17) of the U.S. Federal Code (and similar legislation in other jurisdictions). This federal law protects the works of software publishers and other intellectual property creators. Certain software publishers give the power of attorney to industry organizations (such as those mentioned) to enforce their rights under this law.

The BSA and SIIA are member driven organizations that represent the major software vendors they comprise. BSA membership includes 16 large software vendors, such as Microsoft, Adobe, Symantec and Apple, while SIIA includes hundreds of other software vendors from educational software to high-end CAD software and development tools. Novell is also a Certified Audit Software partner (CASP) with SIIA. Regional offshoots of BSA and other independent antipiracy organizations also exist, such as the Canadian Association Against Software Theft (CAAST) and in the UK, the Federation Against Software Theft (FAST). All of these organizations take the position that piracy is illegal whether it's intentional or accidental. They also agree that all it takes is one disgruntled employee, past or present, to call a piracy hotline to generate an audit.

Software audits can also be conducted by vendors themselves, although this generally remains the province of larger companies such as Microsoft, Adobe, AutoCAD and yes, even Novell.

> Covering Your Bases—Four Steps to a Complete License Compliance Program

To feel confident about your organization's license-compliance status you need to have an ongoing software management program in place. Because software can move from PC to PC at Internet speed, an organization can never be 100 percent sure they are compliant at any point in time; however, a current, well-documented compliance program is the key to satisfy even the most vigilant industry watchdog.

Developing and presenting a credible compliance program to senior management, internal audit committees and third parties requires covering some critical bases.

> First Base—the Policy

The cornerstone of any compliance program is a software management policy that defines organizational practices and responsibilities. The policy should address four key areas:

- **Management oversight** Designate a "license compliance czar," the person in the organization who owns the policy and related enforcement activities.
- **Organizational responsibility** Outline the roles of each area in the organization responsible for software compliance. (Include IT, purchasing, legal, business units and so forth.)
- **Software procurement** Detail the practices that control the request, approval, distribution and tracking of software and its purchase and license records.
- **End-user accountability** Prescribe acceptable purchase and usage procedures to ensure that employees clearly understand what is expected and allowed in relation to company software. Also include clear disciplinary action for noncompliance with the policy.

Once you have a written policy and designated a license compliance czar, you have a basis for a concrete compliance program.

Figure 1 *The License View of discovered software products becomes the basis for the reconciliation between software inventory and licensing data. By normalizing and filtering the discovered product list as described here, the asset manager typically reduces the number of titles they need to reconcile by a factor of 10 when compared to other tools.*

> Second Base—the Inventory

It would be nice to start a compliance program from scratch, but the reality is you have to deal with the technology assets already in place. The key to getting your arms around your current assets is automated asset tracking. Manually collecting data through surveys or walk around audits won't ensure ongoing license compliance. The location, user and configuration of PCs change too often to rely on an inventory snapshot for your compliance program; you need to track history as well.

Consider and include several vital areas in your inventory:

- **Product suite focus** It is easy to be overwhelmed by reams of software installation data that includes lists of executable files or any application that was ever installed on a particular PC. It's important to narrow your focus and ensure you are counting only real applications with licensing implications.

  Furthermore, because many applications are licensed in suites,

And the Survey Says

"Your risk of being audited by a software company has never been greater, given the large number of vendors active in the market today the decrease in new license revenue and vendors' need to find additional sources of revenue. Noncompliance with software usage rights can be extremely costly, with penalties exceeding $100,000, and can result in negative publicity for your company."
—Gartner Research, "Software License Compliance Remains a Problem for Many Companies" by Patricia Adams, March 24, 2005

BSA PRESS RELEASE
"Washington, D.C., (Wednesday, December 7, 2005)—The Business Software Alliance (BSA), a watchdog group representing the nation's leading software manufacturers, today announced that five Los Angeles-area organizations paid BSA a combined total of $555,403.17 to settle claims that they had unlicensed copies of software programs installed on office computers

SIIA PRESS RELEASE
"Washington, D.C.—August 4, 2005—The Software & Information Industry Association (SIIA), the principal trade association of the software industry, today announced that they awarded two whistleblowers $5,000 apiece for reporting their current or former employers continued use of pirated software to SIIA..."

CAAST PRESS RELEASE
"Toronto, ON Monday, September 19, 2005—The Canadian Alliance Against Software Theft (CAAST) and the Business Software Alliance (BSA), watchdog groups representing the world's leading software manufacturers, today announced that ... a national Canadian engineering company, agreed to pay CDN $52,500 after a self-audit revealed that it had unlicensed copies of Adobe and Microsoft software programs installed on its computers."

FAST PRESS RELEASE
28 April 2005—The Federation Against Software Theft (FAST) warns company directors that they risk being branded 'software thieves because of the actions of their employees, including those in the IT department. This warning follows The Federation's recent discovery of over 5,800 illegal digital music files in a software audit of 2,500 PCs at a UK financial services organization.

Who are the auditors?

Business Software Alliance
(BSA)—The Business Software Alliance describes themselves as "the foremost organization dedicated to promoting a safe and legal digital world." They are by far the biggest of the software auditors, and the most active, regularly conducting compliance awareness and enforcement campaigns globally. BSA educates consumers on software management and copyright protection, cyber security, trade, e-commerce and other Internet-related issues. BSA members include Adobe, Apple, Autodesk, Avid, Bentley Systems, Borland, Cadence, Cisco Systems, CNC Software/Mastercam, Dell, Entrust, HP, IBM, Intel, Internet Security Systems, Macromedia McAfee, Inc., Microsoft, PTC, RSA Security, SAP, SolidWorks, Sybase, Symantec, Synopsys and UGS Corp.

Software and Information Industry Association
(SIIA)—Originally known as the Software Publisher's Association (SPA), the Software & Information Industry Association describe themselves as "the principal trade association for the software and digital content industry." In addition to conducting software audits, SIIA also provides global services in government relations, business development, corporate education and intellectual property protection to leading software companies. SIIA's self-described mission is to promote the common interests of the software and digital content industry, protect the intellectual property of member companies, advocate a legal and regulatory environment that benefits the entire industry, and inform the industry and the broader public by serving as a resource on trends, technologies, policies and related issues that affect member firms.

Federation Against Software Theft
(FAST)—The Federation Against Software Theft (FAST) was set up in 1984 by the British Computer Society's Copyright Committee. It was the first software copyright organization. Its first action was to raise the awareness of software piracy and to lobby the U.K. Parliament for changes in the Copyright Act of 1956 to reflect the needs of software authors and publishers. This campaign was successful and it has since been able to influence other legislation that impacts on the proper safeguarding of software. The work of FAST in this area has directly influenced the way software copyright law and investigations are carried out in many other countries.

It is also unique in that it is the only association in the world that represents both software publishers and end users. All the other associations concerned with software management represent software publishers only, and therefore, have an approach that is not geared to helping organizations and end users who are actually responsible for managing software.

Software Vendors
Under the copyright provision (Title 17) of the U.S. Federal Code, the works of software publishers are protected, and many have written provisions into their licensing agreements that allow them to conduct random audits on demand without prior notice.

What relationship does Novell have to the auditors?
Novell is a member of SIIA and FAST, and Novell is a Certified Audit Software partner (CASP) with SIIA. Novell has an agreement with BSA to offer a free 90-day eval of ZENworks Asset Management through the BSA Web site. Novell does not share user information or auditing data with any of the auditing agencies. Audits conducted with ZENworks Asset Management are accepted by all of the auditing organizations and Novell has established long-term relationships with them to ensure that its products are developed to meet their standards. Novell has more than 15 years as a vendor of software auditing tools and as an independent source of information on licensing-related topics.

software managers must overlay a suite view to the list of individual applications to determine true license position and to effectively negotiate with vendors.

- **User demographics** In the world of software compliance, the exceptions always require follow up. To be able to effectively address exceptions, software managers must understand not only how many installations have been discovered, but also which users and departments have the applications. When this information is tied directly to the asset inventory, managers can identify how to take corrective action, if needed.
- **Application details** Unless you can determine the exact version, and in some cases, the specific software serial number, you won't know if the installed software matches your license agreements. The problem with some software audit tools is they read version information from unreliable source files, such as the executable file header information. This skews results.
- **Reporting** Accurate data is useless if you don't report it in a clear and concise way. Compliance reports should provide necessary details such as version, language information and serial numbers, and be able to summarize data by department, site and/or software suite, for instance.

Once you have your inventory in hand, there are also other considerations:

> License Allocation

While legal compliance is generally relevant at a corporate level, day-to-day license management often requires tying licenses to organizational units (site, department or cost center) and even to individual workstations in some cases. Novell ZENworks Asset Management allows you to break down overall license quantities and allocate them to specific groups or workstations. ZENworks Asset Management not only identifies risk issues and cost-savings opportunities, but also gives you granular views to take action. It allows you to determine:

- which departments have more installations than allocated licenses
- which high priced applications are installed on workstations with no allocation
- which workstations within a cost center are consuming allocated licenses but do not have particular software installed.

And if you have not kept records that would indicate how to allocate licenses, ZENworks Asset Management includes a set of wizards to help establish baselines from which to manage allocations.

> Purchasing Standards

Just about every organization strives for an environment where standards are part of day-to-day operating procedures. Standards come into play in numerous areas. Some relate to specific configurations and images, while others relate to approved software applications at an organization level.

ZENworks Asset Management helps you set and manage a list of approved applications for your organization. You can simply create an approved list or get more specific and create a set of standards categories, for example, Standard, VP Approval, and Policy Violation. Either way, you can track purchasing standards and report on exceptions.

> Third Base—the Reconciliation

Once you have a solid inventory, it must be reconciled to your purchase and license information. Industry experts recommend that you use certain documentation as primary proof-of-ownership:

- invoices
- purchase records

The actual reconciliation process must account for the terms of volume purchase and suite agreements as well as copies purchased at the local retail outlet. The reconciliation process is immensely more manageable with inventory information that isolates products and

The License View

Unlike most configuration and asset management tools, ZENworks Asset Management employs a number of sophisticated techniques to ensure that your software inventory is complete, accurate, normalized and tuned for license compliance reconciliation and reporting. The key to providing a "License View" of software discovered on your network is the ZENworks Asset Management Knowledgebase. This Knowledgebase is built and maintained by our team of Technology Analysts, who add and code hundreds of products each month. The Knowledgebase, which is updated monthly, provides a set of filters that create the License View, which:

- rolls up point releases and service packs
- excludes titles with no license implication
- ignores suite components when installed as part of the suite
- identifies standalone suite components when installed outside of the suite
- distinguishes between full and runtime editions. Actually, this is just part of the application view, or in other words, basic software inventory. It is also starting to distinguish eval/trial software from full product.

Application Usage

Compliance *plus* savings

Another facet of compliance and software asset management is application usage trend analysis. With ZENworks Asset Management, application usage tracking occurs at the workstation level and captures the following information for both locally-run and server-run applications:

- daily total run-time
- daily active (foreground window) time
- workstation
- user

Combined with the compliance status, this information provides another key perspective for decision making. For instance, in under-licensing scenarios, it may be possible to uninstall the applications from workstations where they have not been used for an extended period of time.

ZENworks Asset Management not only enables tracking of suites at the suite level for license reconciliation, but also at the underlying component level to allow for usage analysis. This can be useful for determining if employees are using all components of the suite and if not, to implement a plan to provision them with a more limited suite edition.

product suites, manufacturers and serial numbers. With this level of accurate information, you can demonstrate your compliance status with confidence.

ZENworks Asset Management includes an autoreconciliation feature that attempts to match discovered products to purchased products using a number of text matching algorithms. You can also use the autoreconciliation process to create a set of licenses based on the normalized manufacturer and product names contained in the ZENworks Asset Management Knowledgebase. ZENworks Asset Management also has connectors to purchasing information from major software resellers such as SHI, SoftChoice and Software Spectrum.

Once discovered, and after catalog products are linked to a common license, you get an immediate picture of over and under-licensed situations. The ZENworks Asset Management compliance report represents a near real-time view of potential risk and cost savings scenarios because:

- discovery data is constantly updated as scheduled inventories occur, and
- license quantities are updated as purchase records are imported.

> Home—the Enforcement Zone

Once the initial inventory and reconciliation is complete, the focus of the software manager should shift to enforcing policies and keeping the program current. The best way to ensure that your organization keeps the lid on illegal software is to tightly control the procurement and distribution process, and to maintain an automated inventory. Even software that comes in through legitimate channels can find its way onto more computers than intended if not controlled properly. Unfortunately, software also comes into organizations through the back door, and only through a vigilant inventory process will you know what is actually installed in your organization.

Software managers should also look to the internal audit group for an independent review of policies and practices. This will not only allow the program to be fine tuned, but will also help prove diligence to external parties.

Implementing a software compliance program is not necessarily easy, but following these steps and using the right tools can keep you on track and focused on the critical elements of the program.

> Proven Technology—Accurate and Reliable

The release of ZENworks Asset Management and its award-winning asset tracking and discovery tools provide unmatched accuracy for a true accounting of your hardware and software assets. ZENworks Asset Management reports on the full range of IT devices: servers and routers, desktops and handhelds—and the software running them. ZENworks Asset Management can scale to your environment whether you have PCs at one location or all over the world.

With powerful software usage and license tracking, ZENworks Asset Management will allow you to cut the costs associated with end user support and reduce your legal exposure with simplified management of software license compliance. Combined with the strengths of the ZENworks 7 Suite, Novell is helping to ensure that your IT environment is stable, secure and reliable—today and in the future. N

Figure 2

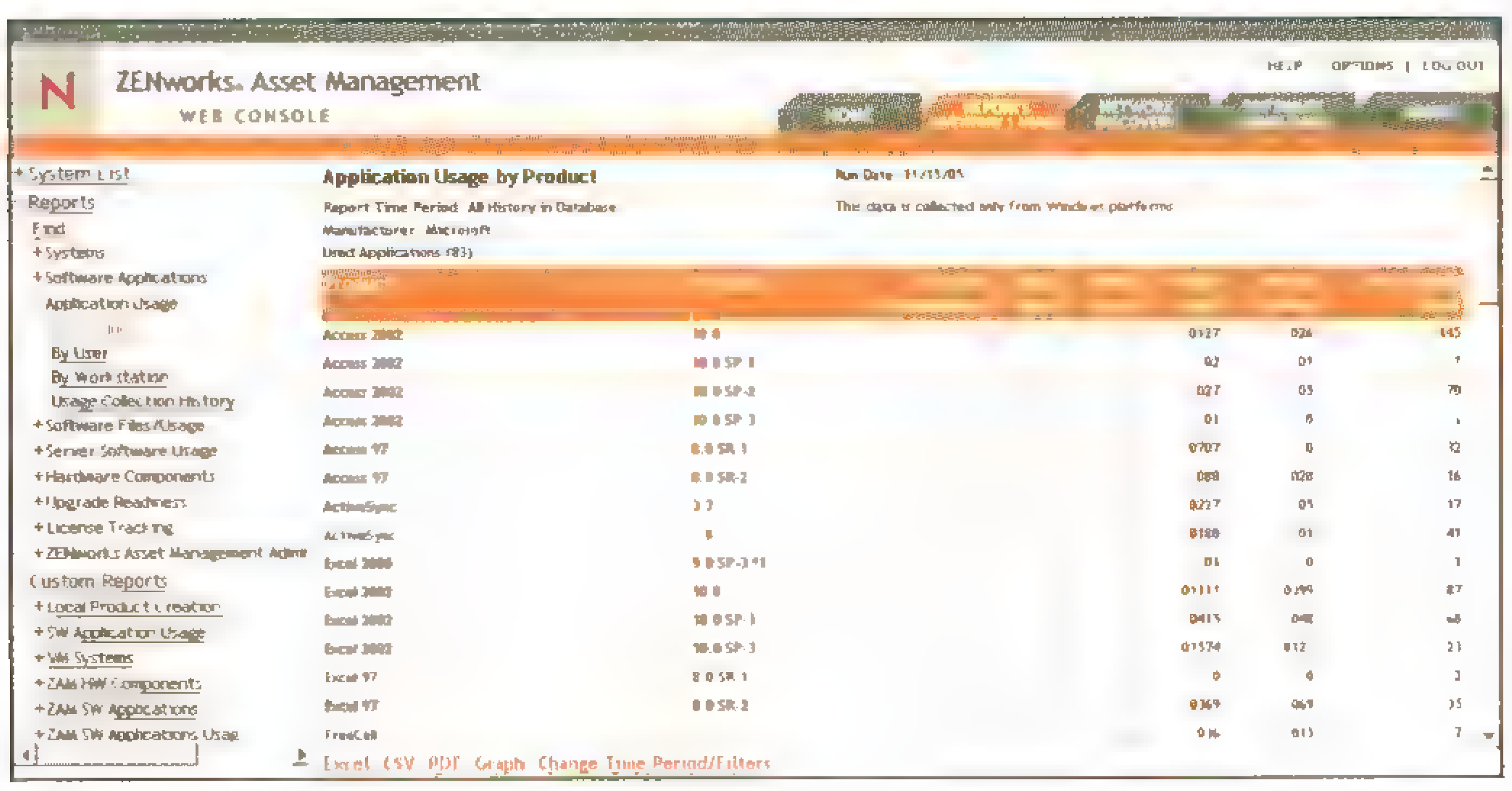


Figure 3

HIGH THERE.

By Chander Ganeson

Novell SUSE Linux Enterprise Server Providing Fault Tolerance with Linux High Availability Services

In today's enterprise, downtime costs money, and a simple outage can result in hours of work and business lost. Fortunately for SUSE Linux users, Novell SUSE Linux Enterprise Server 9 contains Linux High Availability (HA) services.

HA services are provided by a specialized set of applications that run on a SUSE Linux Enterprise Server 9 server. These programs communicate with a redundant server (we'll call it a node) on the network, and initiate failover processes when the node becomes unavailable. HA services enables you to quickly and easily configure systems to provide automatic service redundancy in the case of a hardware failure.

The heartbeat package provides HA services, and is relatively easy to configure and manage. In this article we'll discuss some of the advantages of HA services, and how to configure and test them. In particular, we'll set up a redundant node to take over serving Web pages when the main node fails.

> Configuring the Hardware

The basic premise behind using Linux HA services is that two nodes monitor each other and when the active node becomes unavailable, the passive one takes over. This monitoring is typically done using redundant connections, so even if the primary network goes down, the services don't start failing over.

In our example, we'll set up HA monitoring to use a NIC card (we'll use a crossover Ethernet cable to connect the two systems), and a null modem cable connecting the serial ports of the two servers. (We can use the /dev/ttySo device to communicate between the two systems.) By providing two means of communications, we'll ensure that a single cable failure won't disrupt intranode communication and cause services to fail over.

When configuring network interfaces, if at all possible, segregate your working network from the network you use for intranode communication. This helps to ensure that network issues, such as a problem with a switch or unusually heavy network load, won't trigger a service fail over. You minimize the points of failure by placing the two nodes on a separate, dedicated network. The best solution is to use a crossover Ethernet cable and a couple of NICs. Configure your network addresses as appropriate for a point to point network.

> Prepare the Services

HA-supported Services are started as part of the HA initialization process not the normal system initialization. To ensure they aren't started twice, and more importantly, that they don't start unless they are needed, remove the services from the normal system startup. The `insserv -d apache2` command removes Apache (Web server) from the normal system initialization. Instead, Apache will be started by the HA services that we configure next.

> Installing the Heartbeat Packages

HA services are provided by three heartbeat packages:

- heartbeat
- heartbeat stonith
- heartbeat pils

These packages provide the base HA functionality. If you want to set up HA using YaST, use the `yast2-heartbeat` package because it has the YaST module you need to configure HA.

> Configuring High Availability

You can configure HA services using the SUSE Linux Enterprise Server 9 YaST GUI, which creates & modifies the configuration files in the /etc/ha.d directory. After you install the required packages, start YaST, and select the High Availability module from the System section. Or you can use the `yast2 heartbeat` command to start the module directly.

Typically, you configure HA services to start when the system boots; this allows the system to recover automatically when a problem occurs and, optionally, reassert control over the redundant service. If HA services aren't started, messaging between the two nodes won't occur and the services we've configured won't start.

From the Start-up Configuration screen, select On under Booting. (SEE FIGURE 1.) Normally, you can start the HA services from this screen, but in this case we haven't yet configured the HA services. Select Next to configure HA services. After you've finished configuring the service, you can use the `rcheartbeat start` command (on both servers) to initiate HA services.

HA services work between two nodes, so you need to specify the other node for this HA cluster. Later, when we configure redundant

Small Expense, Big Returns

You can couple HA with Distributed Replicated Block Devices (DRBD), which allow file system mirroring over a network, and allows redundant file systems as well as services. **Coupled with MySQL or PostgreSQL clustering solutions, HA can provide clustered MySQL and PostgreSQL databases with High Availability.**

These solutions allow Linux systems to provide database, file and other services with a high degree of availability at a fairly low cost. So let your imagination wander. Using SUSE Linux Enterprise Server 9 and its Linux High Availability services, you can put a HA solution into place without much expense that will pay off big when you have that eventual system failure.

The basic premise behind using Linux HA services is that two nodes monitor each other and when the active node becomes unavailable, the passive one takes over.

This monitoring is typically done using redundant connections, so even if the primary network goes down, the services don't start failing over.

services, make sure that the node names match the output of uname n exactly; HA services won't start unless the host name matches the configuration file exactly. (SEE FIGURE 2.)

Once you've defined the hosts that will be used for the HA cluster, specify how they will communicate (the heartbeat). If you recall, we're using two methods: the /dev/ttyS0 (serial port with a null modem cable) and the network. While it's possible to add more methods (and later we'll see how we can add more checks to ensure systems are available), two are generally sufficient for most configurations. Select the media you'll use for communication and click Add. Keep adding media settings until you've added all of the settings you need. (SEE FIGURE 3.)

To ensure that heartbeat messages are co opted or forged, you can use an authentication key. Without a key, messages will be sent with a simple checksum to ensure they arrive intact, but without any special identification information.

In this case, where our communication medium is a secure network, a simple checksum is sufficient and less resource intensive; however, when HA communication occurs over an insecure network, it is important to use a secret key (symmetric key). This key is the same on both nodes in the HA cluster and ensures that only valid HA messaging is recognized.

The most secure, and most resource intensive, mechanism to use is the SHA1 algorithm. Information you enter using that algorithm is stored in the /etc/ha.d/authkeys file. (You can always copy this file over an SSH connection to the standby system.)

> Configuring Resources

The most common HA applications involve configuring a failover IP address and a failover service. In the case of a failover IP address, when one system becomes unavailable, its partner system assumes its IP address. The HA system will automatically send out a gratuitous ARP packet, informing routers and switches that the IP address has a new owner. For multiple services, you can use multiple IP addresses; HA will activate the IP address automatically when the service fails over.

When adding resources, associate each resource with a primary

Figure 1 *Select 'On' but do not start the server yet because you must configure it first*

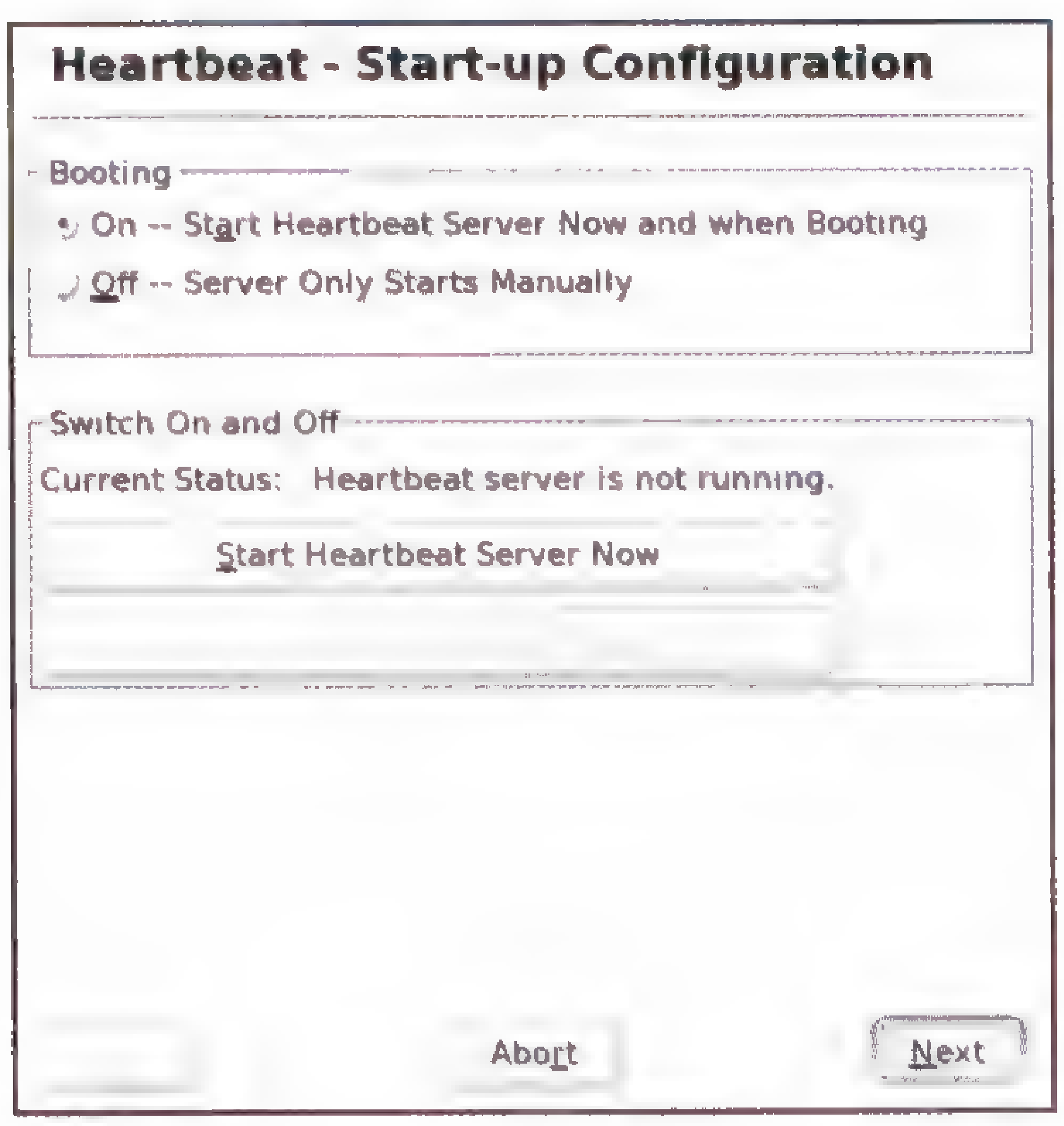
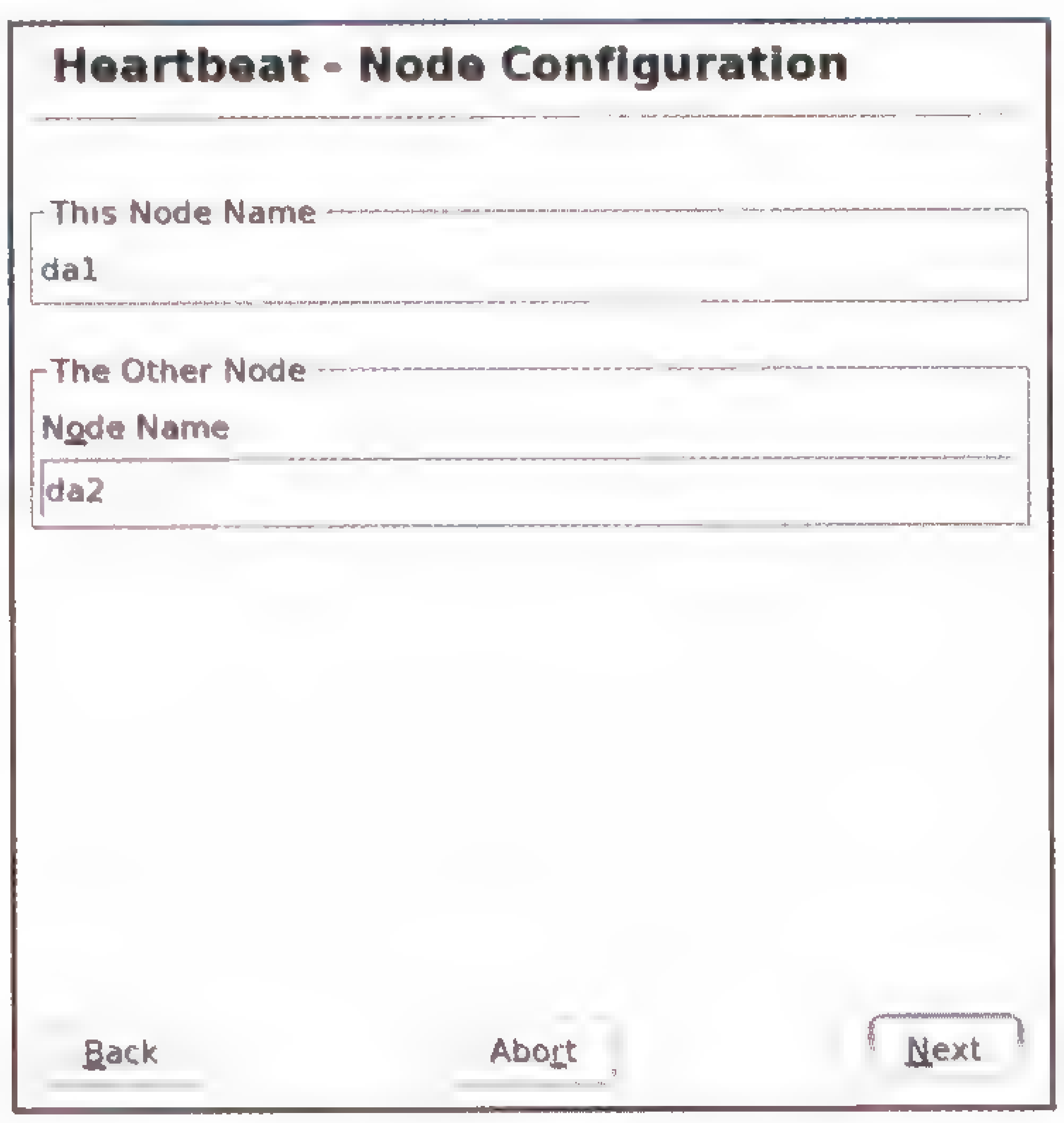


Figure 2 *Ensure that node names match the output of the uname -n command*



node — the node on which the service should normally be started. The HA system will initially start the services on the primary node. If the primary node for a service is down, the partner node will start the service.

For this system to work properly, both systems should agree on the services and who needs to provide them. As a result, the resources should be identical on both nodes in the cluster. Resource information is stored in the /etc/ha.d/haresources file. This file must be identical on both nodes in the cluster and can be copied from one node to the other after you configure the first one.

Resources listed as services are named after their system initialization files, as found in the /etc/init.d directory. The HA system will start and stop these services using the `start` and `stop` arguments just as when the system first boots. In our example, the apache2 service will normally run on node da1 and needs to be failed over to node da2 if da1 is unavailable, or in other words, is not sending out heartbeat packets.

When listing IP addresses for failover, use the IP address as the name of the resource. The HA system will recognize the dotted decimal notation automatically, and assume control of the IP address when a failover occurs. In this case, the 10.0.2.192 IP address needs to be failed over, so incoming HTTP requests can be redirected to the appropriate system when a failure occurs.

If either system has multiple network interfaces, the HA system will refer to the routing table and assign the IP address to an interface based on the lowest cost route; typically, this is the default route. Remember, this requires no special network configuration, as long as the IP address listed is on the same subnet as a NIC card in the system.

When a system becomes unavailable, the resources start in the order they are listed. This ensures that dependencies are met, if needed, when services are started. In our example, we need to assign the new IP address prior to starting Apache. Otherwise, Apache might not bind to the proper IP address.

The inverse of this is also true: when you manually switch a service over to another node the services will be stopped and the IP addresses will be released in reverse order. When adding/listing services for failover, ensure that the services are started and stopped in the proper order. (SEE FIGURE 4.)

You might notice in our example, we placed the ownership of all services on da1. You can also assign some services to be owned by da2. This would allow you to use both da1 and da2 for normal network services, with each taking on the additional load of the other in the case of a failure. This type of scenario allows you to better use your hardware, since neither server will ever sit idle while still providing fault tolerance.

When configuring resources, you must tell the HA system how to recover from failures. When a node becomes unavailable, its mate will start the necessary processes to ensure those services remain available; however, when a node, which was previously down, becomes available, the HA system must determine how to recover.

Use the Automatic Failback option to configure this. With Automatic Failback turned off, services won't automatically switch back when a node returns to operation. Instead, the nodes remain in the post failure state until someone resets them (by using the `hb_standby` command), or another failure occurs. If the setting is On, the primary node for a service will assume control of it when that system comes back online.

In most situations, the Off setting is preferable, because it minimizes service disruption, or the "hiccup" that occurs when services switch over. The Off setting also prevents services from switching back and forth when a system has a recurring problem. The Legacy setting is for backwards compatibility with older versions of the HA system and you typically don't use it.

> Configuring a STONITH Device

When services fail over, the failover system must be certain that its peer is really down. To ensure this, HA can communicate with a Shoot-The-Other-Node-In-The-Head (STONITH) device.

Figure 3 *Set the media configuration based on your hardware configuration*

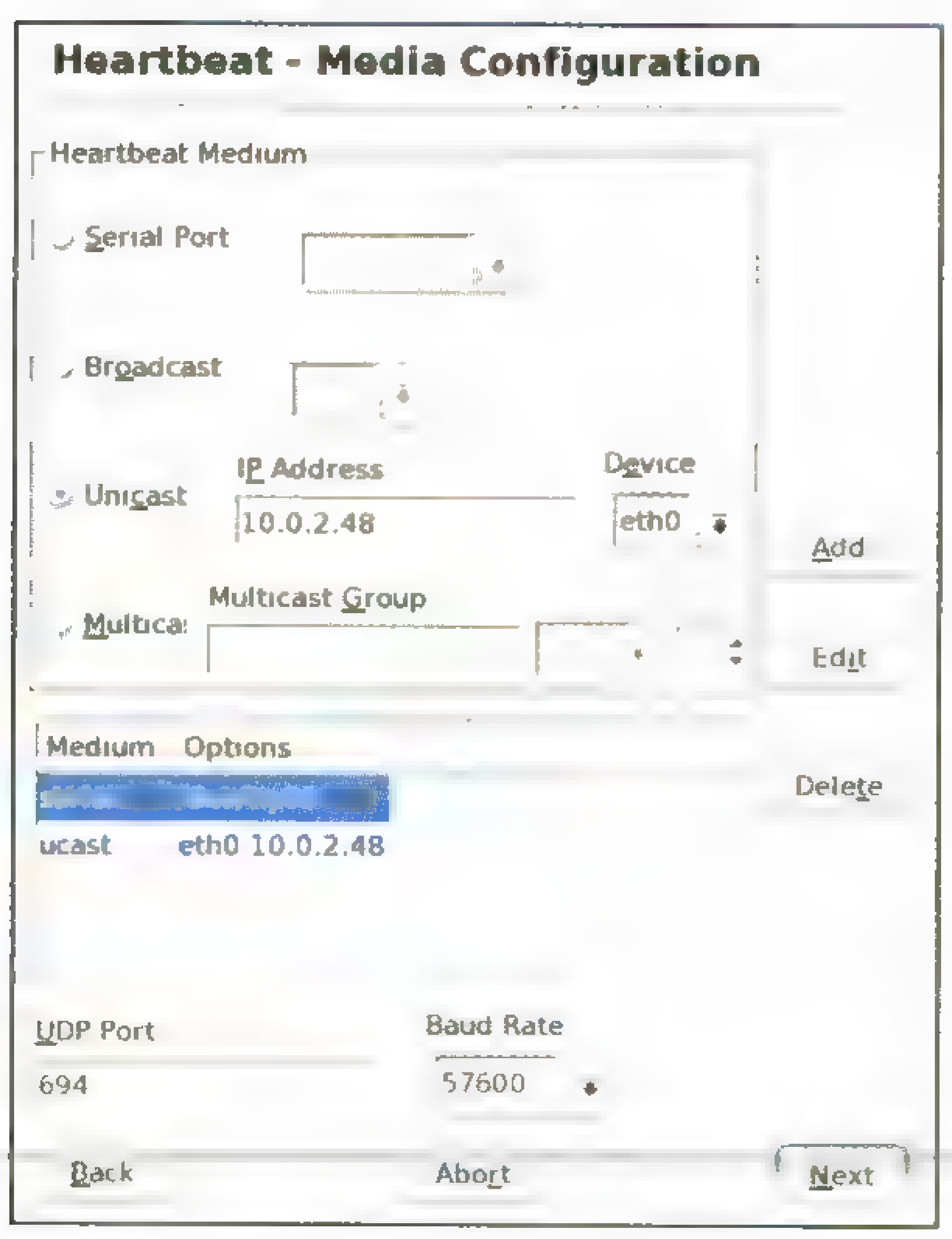
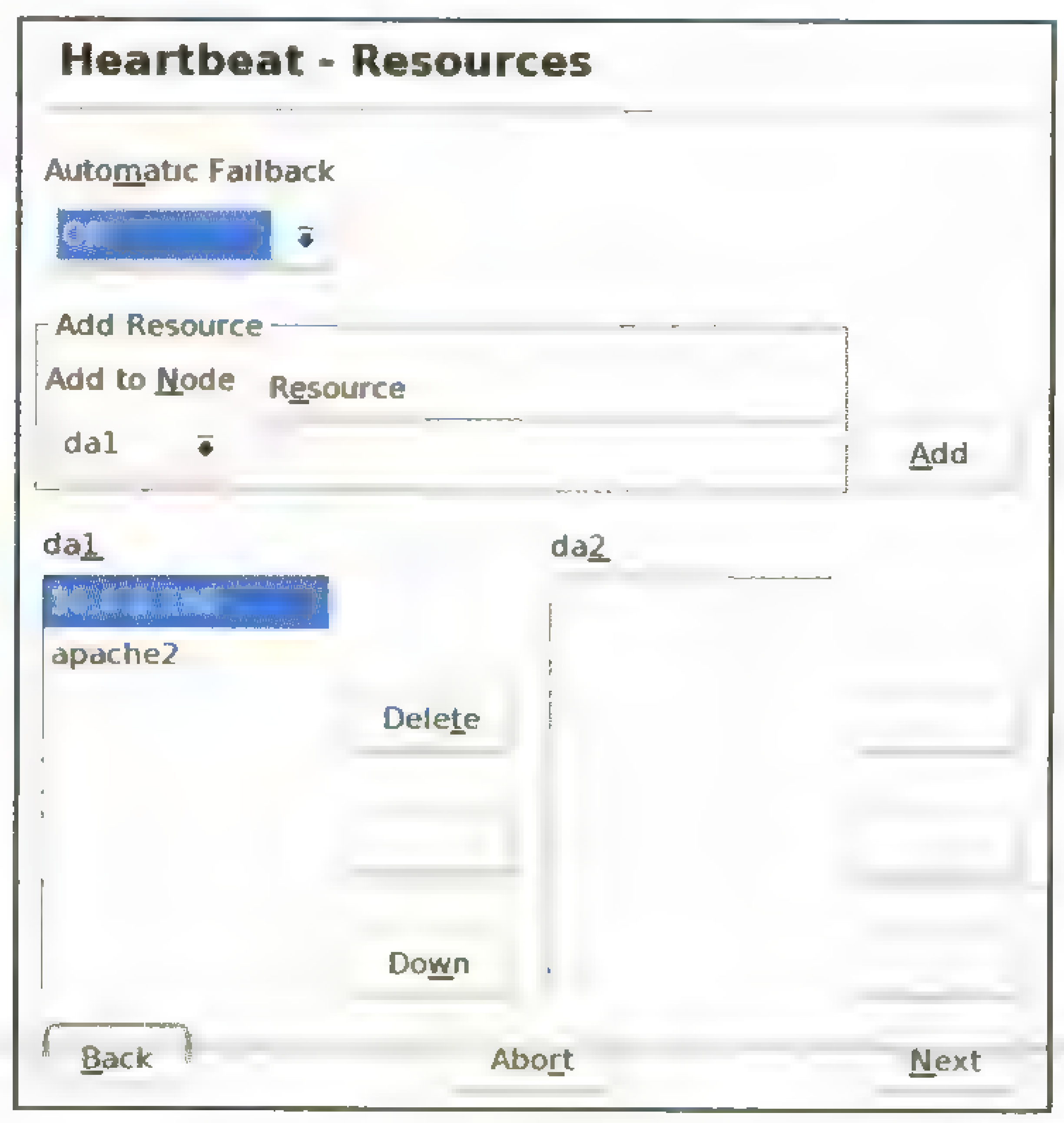


Figure 4 *Services must be listed on their primary node in the order they should be started*



Make sure that your DR/Business Continuity plan is not a roadblock.

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Remember, *a STONITH device doesn't perform a graceful shutdown of a node, which could result in more data being written or additional delays in a failover. Rather, it interrupts all processes and immediately shuts down the server.*

A STONITH device ensures that a node is down, usually by cutting the power to the device using a software actuated switch. The HA system supports a wide range of STONITH devices, many of which it controls using the SNMP protocol. (SEE FIGURE 5.)

Remember, a STONITH device doesn't perform a graceful shutdown of a node, which could result in more data being written or additional delays in a failover. Rather, it interrupts all processes and immediately shuts down the server.

If you use shared devices, such as a shared disk, make sure the active node is down before the passive node goes active; data corruption might occur if both systems try to read and write the same data. Several devices exist that provide STONITH operations for HA systems. They are typically multiple-outlet power switches managed via SNMP over the network.

> Starting & Verifying HA Services

HA Services are started using the `rcheartbeat start` script and stopped using the `rcheartbeat stop` script. Typically, you start these services on the primary node for services first, and then the failover node. If they start on the failover node and the server doesn't get any heartbeats, the failover node will start the services.

Once started, you can find information about the status of HA services in the /var/log/ha-log log file; don't forget to add a configuration file for this log to logrotate! You can include HA services in the system boot sequence using the `insserv heartbeat` command; you typically do this when you configure the HA system.

Once HA services are started, the two nodes will communicate over the channel(s) you configured. Each node will determine the status of the other, and will start services based on the node status. Examining the log file on the primary node reveals that the primary node activated the IP address that we had allocated for the HA service, and then started the apache2 service. (SEE FIGURE 6.) The secondary node's log file shows the node was placed in standby. In this case, it will continue to monitor messaging and heartbeats from the primary node to ensure the node is available.

Figure 5 *Configure a STONITH device to ensure that the two nodes never provide a service simultaneously*

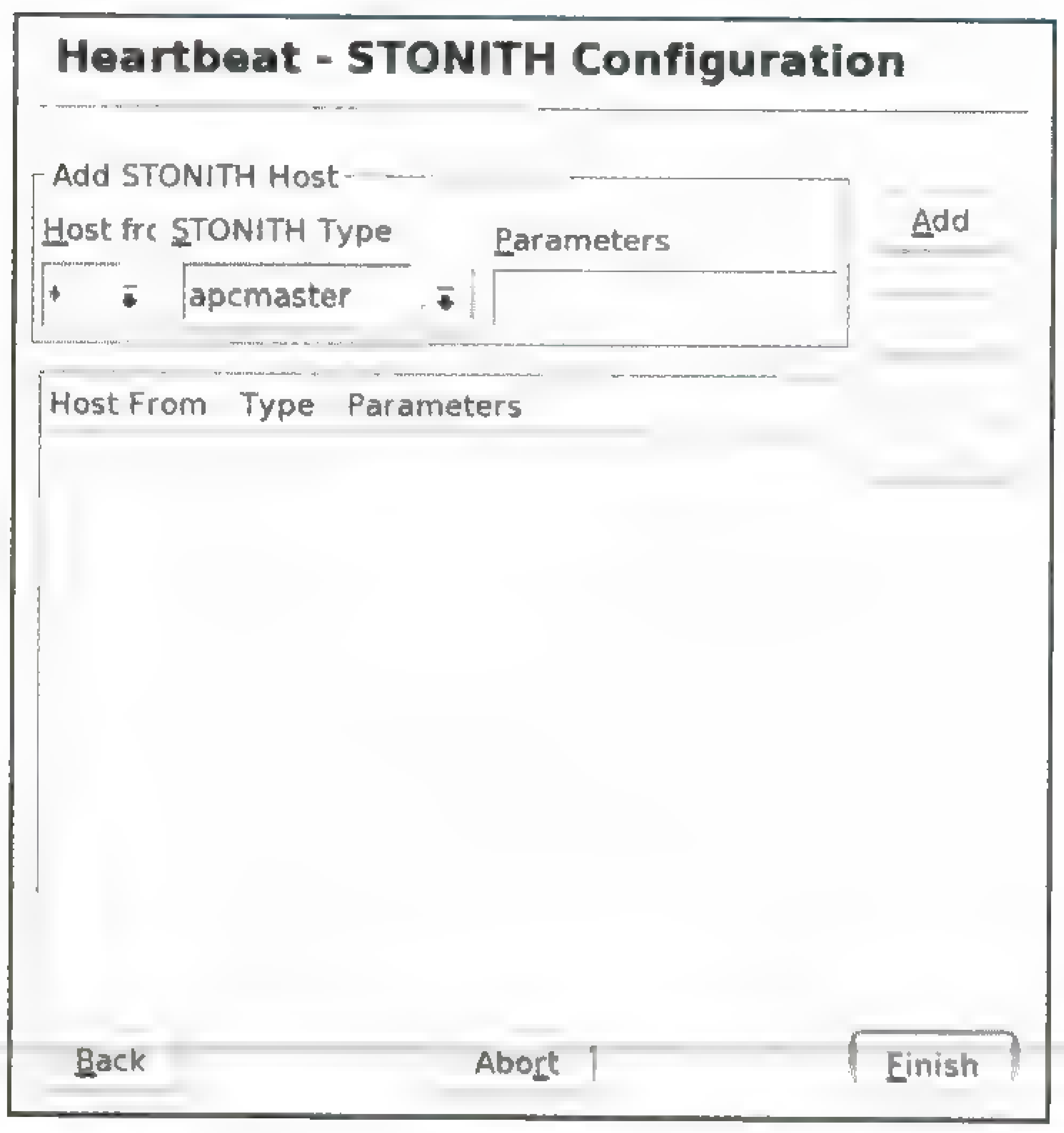
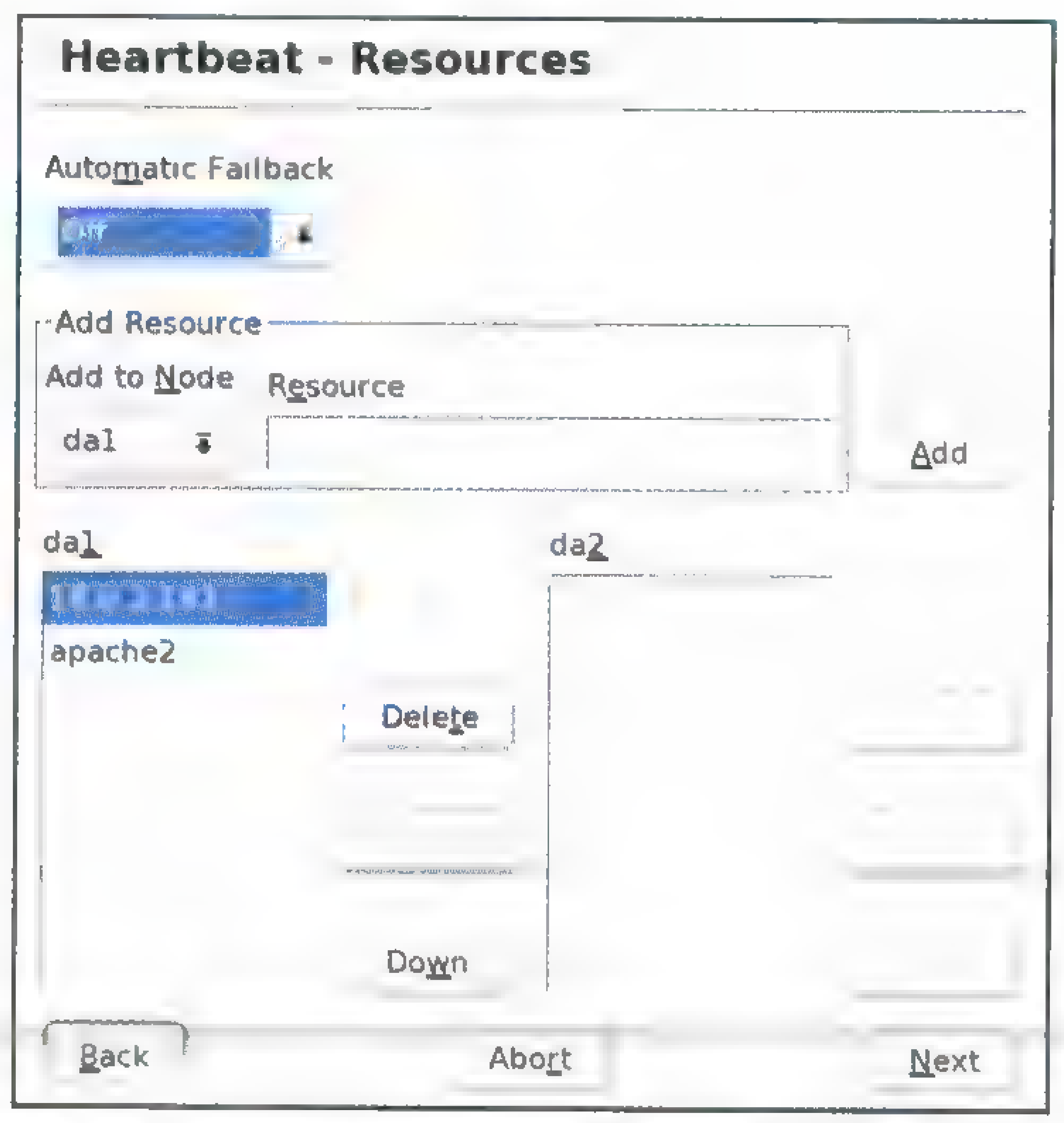


Figure 6 *The ha-log file shows the activation of the IP address and startup of redundant services*



> Testing the Failover Services

To verify proper operation of the service, you can perform a range of tests: To perform a manual failover, use the `/usr/lib/heartbeat/hb_standby` command. This command lets the HA system know that the current node, or the one on which the command is executed, is going into standby mode. As a result, the other node in the cluster will assume control of the resources that were configured.

In this case, let's configure Apache on the two nodes with two different Web pages. When a failover occurs, you can press Reload in your browser to retrieve a new Web page from the other node in the cluster.

To switch back, log on to the current active node and issue the `hb_standby` command again. You can also issue the `hb_takeover` command from the non active node causing it to signal the active node and then take control of HA resources.

If you've configured multiple resources, you can use the `/usr/lib/heartbeat/req_resource` command to request that a node take control of that resource. For example, perhaps "named" is a primary resource for da1 and apache2 is a primary resource for da2, you can use the following command to take control of the apache2 resource again: `/usr/lib/heartbeat/req_resource apache2.`

That command migrates the specified resource, along with all other resources on the same configuration line of that resource, over to the node where the `req_resource` command was executed. This allows you to configure a pair of HA nodes so they can provide redundancy for services running on each other. This lets you use hardware that might normally only be used as a hot standby device.

The final test is to unplug your serial cable and crossover Ethernet cable and ensure that services switch over and the STONITH device powers down the failed node.

> Advanced HA Features

The HA features of Linux go far beyond the simple failover scenarios discussed herein. You can configure Heartbeat to perform a wide range of other operations that ensure your users always have reliable network services. N

Fine Tuning Your Heartbeat

Depending on your needs for service availability, you can fine tune HA services by modifying the /etc/ha.d/ha.cf file. Using different configuration parameters, you can better control the frequency of heartbeat messages, the delay before a failover occurs and other related settings. You can find more information on this configuration file at *www.linux-ha.org*.

HA can use the ipfail module to monitor external IP connectivity. As long as the node can

that node will remain active. If ipfail detects that connectivity is lost, it will cause a HA failover. This type of watchdog allows the HA system to detect more than simply an unavailable system. Using such a solution increases the importance of having automatic failback disabled, since network outages can sometimes be temporary. You can also configure the ipfail module through the YaST heartbeat module.

With the heartbeat-ldirectord package installed, HA can also monitor the proper operation of network services. While standard HA solutions watch for heartbeat messages, or network connectivity, to fail over, the heartbeat-ldirectord package contains scripts that can monitor additional ports and services, for example, httpd, https and ftp. If a monitored service becomes unavailable, or returns data that was not expected, HA services can be triggered to perform a failover. Such solutions allow you to cause automatic failover of services in several scenarios ranging from Web server errors to hacked Web pages

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Please pass the S.O.A.P.

Simple Object Access Protocol

By Ken Baker

In the business world when you need answers or you want get to the bottom of a particularly difficult issue, a face-to face meeting with your key players often gets the best results. It's that direct eye contact and being able to watch someone's body language that helps you cut to the chase and get the information you need to make the right decisions that lead to success.

Similarly, when it comes to getting a handle on what's going on in your GroupWise information stores, a direct approach can often enhance your efforts. No, I'm not saying that all your IT team meetings need to happen face to face. While that can be a good thing, I'm talking about the new Simple Object Access Protocol (SOAP)/XML based Web service in Novell GroupWise 7 that enables you to directly access your GroupWise Post Office Agents programmatically, or through the back door using code.

> The Scoop on SOAP

The GroupWise Web Service enables direct client to-Post Office Agent communication, allowing you to easily see, use and manipulate data in users' mailboxes. While the GroupWise Object API provides this same functionality, it uses a Component Object Model (COM) interface, which means that it's only available on Windows. As a standards-based solution that utilizes SOAP, the GroupWise Web Service facilitates cross platform development. Furthermore, because the GroupWise Web Service is a server side interface, it makes it ideal for multithreaded, high performance server applications.

The goal of SOAP is to provide programs an easy way to communicate with each other using XML. It was developed by the XML Protocol Working Group as part of the WC3 Web Services Activity. (WC3 stands for the World Wide Web Consortium, which defines and develops specifications, guidelines, software and tools for the Web.)

SOAP is defined as a lightweight XML based protocol for the exchange of information in decentralized, distributed environments. The SOAP protocol consists of three main parts:

- a SOAP envelope that defines a framework for describing what is in a message and how to process it
- SOAP-encoding rules that define a serialization mechanism that can be used for expressing instances of application-defined data types
- a SOAP RPC convention for representing remote procedure calls and responses

Essentially, SOAP, XML and HTTP work together to enable and facilitate communication between Web services and service requesters, independent of platform. HTTP is the transport. SOAP is the container. XML is the data. It's through this SOAP, XML and HTTP combination that GroupWise 7 enables and facilitates platform-independent communication between service requesters and the GroupWise Web Service.

GroupWise has SOAP listeners that you can enable on your different GroupWise Post Office Agents. When enabled, the GroupWise Web Service, or SOAP, listens for requests from SOAP clients. These requests provide the means for SOAP clients to access client data stored in GroupWise Post Office Agents. These requests can include login to a user's mailbox; getting address books and address book items; getting the folder list; and accessing proxy, shared folders and other client actions.

> An Open Heart

While the heart of the GroupWise Web Service is the industry standards that it leverages—HTTP, XML, SOAP and Web Services Description Language (WSDL)—it's the GroupWise use of WSDL that makes it so easy for administrators and third party developers to take advantage of this new Web service interface for GroupWise.

As its name suggests, WSDL is a language used to describe a Web service. It is currently in the WC3 proposal stage, but it seems to have already been adopted as an industry standard for reducing the time it takes for developers to create SOAP/XML service requester applications.

A WSDL document is an XML file that has three functions. It:

- describes what operations a Web service can perform

Listening In

In addition to letting you access the data in your Post Office Agents, the GroupWise Web Service also lets you listen for events that occur there. GroupWise uses event records to track event data on a user-by-user basis. Event records are stored in each user's individual database. SOAP clients can register with the GroupWise Web Service so they are notified when certain events occur. In other words, by using individual user keys, you can be notified when events related to a certain user occur. You can register for notification on specific events, as well as for events that take place within a certain time.

For example, you can create an application that notifies you when certain items are deleted from a user's mailbox. Now that you know how to listen for GroupWise events, you can create powerful and efficient applications that eliminate your laborious task of regularly dredging the mailbox for information, and looking for changes during periodic comparison checks.

- tells how to talk to the Web service
- shows the methods that a Web service exposes.

You can leverage this capability with the GroupWise WSDL and GroupWise Web Service if you use an IDE or application framework that can compile a WSDL and schema into its Web Service library.

Think of it like this: WSDL is to Web services what .h files are to C++. If you want to help someone understand how to use your C++ classes, you give them your .h files. Even though they might not have your implementation, they can interface with it because they have your class declarations. A WSDL document likewise gives you the information your applications need to understand and use a particular Web service. So referring to the three functions just stated, the GroupWise WSDL a) describes what operations the GroupWise Web Service can perform, b) tells how to talk to the GroupWise Web Service, and c) shows you the methods that the GroupWise Web Service exposes.

In short, the GroupWise WSDL makes it easy for you to use the GroupWise Web Service to get to and manage the data in your users' mailboxes. Its goal is to eliminate the need for you to understand or deal with the complexities of XML, SOAP and HTTP as you take advantage of the GroupWise Web Service.

Fact: WSDL is the cornerstone of the Universal Description, Discovery and Integration (UDDI) initiative spearheaded by Microsoft, IBM and Ariba.

> Before You Start

Before you can start developing your own SOAP GroupWise service requester or client, you need to take care of a few housekeeping items.

First, make sure you have the following basics:

- GroupWise 7 or later
- an Integrated Development Environment (IDE) framework that supports Web services such as Java, .Net, Mono (open source implementation of .Net on Linux), or gSOAP
- Java developers can choose from a variety of implementations or frameworks, including Sun's Web Services Developer Pack with NetBeans IDE 4.1 or later and J2SE5.0 or later.
- .Net developers can use Microsoft .Net 2003 or later.
- GroupWise Web Service (SOAP) Novell Developer Kit *(developer.novell.com/ndk/gwsoap.htm)*

> Let's Get Going

Now, complete the following steps:

1. Review the materials in the GroupWise Web Service (SOAP) Novell Developer Kit. Start with the readme.1st file. It provides brief overviews and the locations of key documents and files contained in the Novell Developer Kit, including additional readme files, SDK documentation, schemas and more.
2. Java developers need to read the readmeJava.sxw file and .Net developers should read the readmeMSNET.sxw file to get specific information on setting up the development frameworks to work with GroupWise WSDL.
3. Enable SOAP on your GroupWise Post Office Agent from ConsoleOne: select the desired Post Office Agent, select Agent Setting from the GroupWise tab, and mark Enable SOAP.

Figure 1 You can enable the SOAP listener on ... from within the Agent Setting under the Gro...

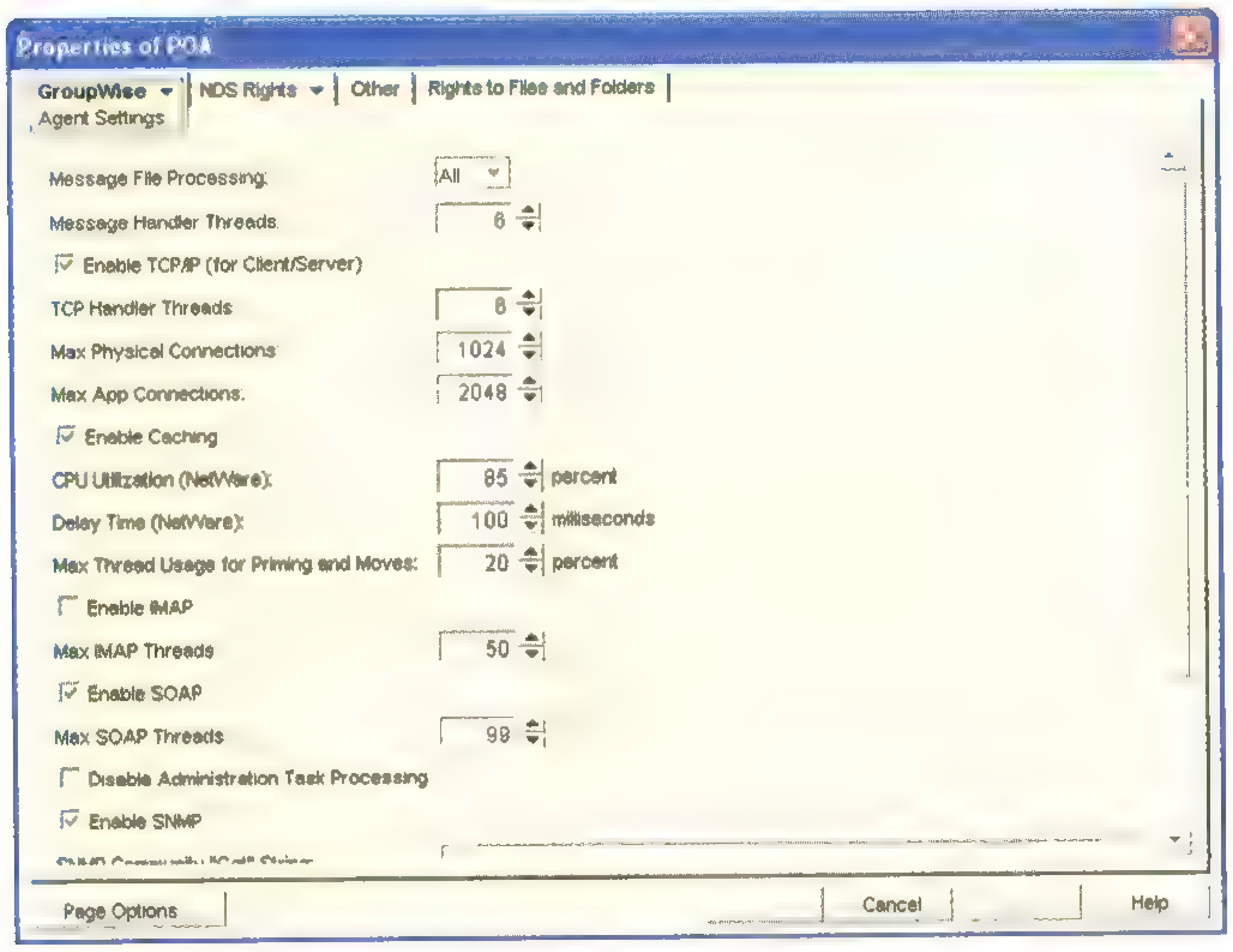
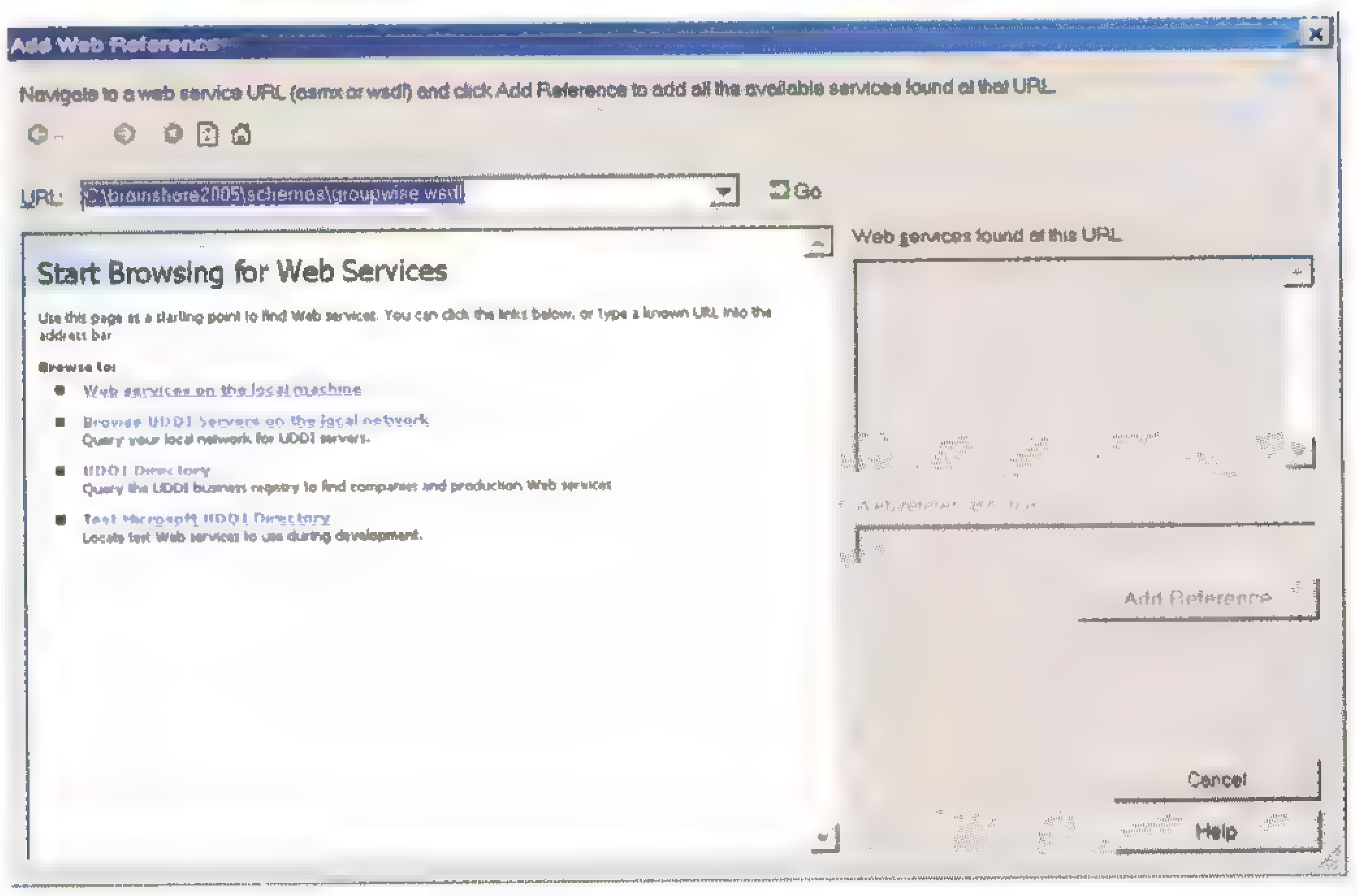


Figure 2 To import the GroupW... WSDL into a .Net fram..., add it as a Web Reference from ... in Solution Explorer



Fact: HTTP requests are usually allowed through [illegible] programs using SOAP to communicate can communicate with [illegible] Ariba, Commerce One, Compaq, Developmentor, HP, IBM, IONA, Lotus, Microsoft, SAP and UserLand proposed the SOAP Internet protocol to the W3C in May 2000.

(SEE FIGURE 1.) You can also enable SOAP through the command line or a configuration file.

> Have It Your Way

The Novell Developer Kit for the GroupWise Web Service (SOAP) contains the GroupWise WSDL and schema files for Java, Microsoft .Net and other development frameworks. So whether you work in Java, Mono, .Net, or another framework, if you want to use GroupWise WSDL, it's a simple matter of importing the GroupWise WSDL document into your framework environment.

To import the GroupWise WSDL into a .NET framework (using Visual Basic), do the following:

1. Select New|Project from within your .Net framework.
2. Select Visual Basic as your development language.
3. Open Solution Explorer and click on the project name.
4. Select Add Web Reference and then enter the location of the groupwise.wsdl file. (SEE FIGURE 2.) Ensure that the XML schemas types.xsd and methods.xsd are in the same directory as groupwise.wsdl.
5. Name the Web Reference.

To import the GroupWise WSDL into a Java framework do the following:

1. From within the NetBeans IDE, select File Open Project and open the project directory at /netbeans/javaClient.
2. A dialog box will likely appear informing you that your project is not set up correctly. The following steps tell you how to resolve the problems:
   - A Click the JavaClient project and select Resolve Reference Problems.
   - B When the Resolve Reference Problem appears, highlight "GWWS library could not be found" and click Resolve.
   - C Select "New Library" and name it GWWS.
   - D Add the GroupWise WSDL library to your newly created

Cut and Paste

The following Java code gets a folder list for a GroupWise user's mailbox

```
// The views are the XML elements or fields that the POA will return
String view = new String("name folderType");

// Create a response object
m_folderListResponse = new GetFolderListResponse();

// Call the POA to get the folder list
// 1st parameter: "folders" means to get all the folders from the root of the mailbox
// 2nd parameter: elements to return in the response
// 3rd parameter: return all the folders in the mailbox
// 4th parameter: return imap folders
// 5th parameter: return nntp folders
// 6th parameter: session id
m_folderListResponse = m_main.getGWService().getFolderListRequest("folders", view, true, false, false,
m_main.getSessionId());

// The response will have the folders.  If there is not a problem, the return code will be 0
if(m_folderListResponse.getStatus().getCode() == 0 )
{
   // Success getting folder list
}
```

library: select the Classpath tab and click Add JAR/Folder. Then highlight the /wsdl/dist/lib/gwws.jar file and click OK. (SEE FIGURE 3.)

E. On both the Sources and JavaDoc tabs, add the directory wsdl/java/build/src. At this point, a dialog will show that GWWS has been resolved, but it might also show that JWSDP still needs to be resolved. This means you need to add the Java Web Services Developer Pack jar files into your development environment. To do this, create a new library for it in much the same way you did for the GroupWise WSDL. You can find the details for this process in the readmeJava.sxw file in the Novell Developer Kit.

Note:
Whether you're working with a Java or .Net framework, you should review the Developer Kit's readme files specific to your environment for setup and configuration details.

> Digging In

When you import the GroupWise WSDL into your development framework, it automatically generates a GroupWise Web Service library that allows you to easily make calls directly to the Post Office Agent. For example, if you want to log in to GroupWise, simply use the local "login" method and objects that have been created by the framework's WSDL compiler. You don't have to deal with the underlying details of working with SOAP, packaging XML documents, parsing XML or using HTTP. Once the GroupWise WSDL document is imported into your framework, those details are taken care of by your application framework.

To see how the GroupWise WSDL simplifies your development efforts in interfacing with the GroupWise Web Service, see *Cut and Paste.*

The Novell Developer Kit contains even more extensive sample programs for using GroupWise WSDL methods for things such as logging into the GroupWise Web Service, and getting folder lists and mailbox items. In addition to sample code, the Developer Kit contains PDF documentation files on the methods and objects for the GroupWise SOAP protocols and GroupWise Events. The developer kit also provides the XML schemas that help you understand what methods can be used on the GroupWise Post Office Agents as well as show you what objects GroupWise expects for certain methods.

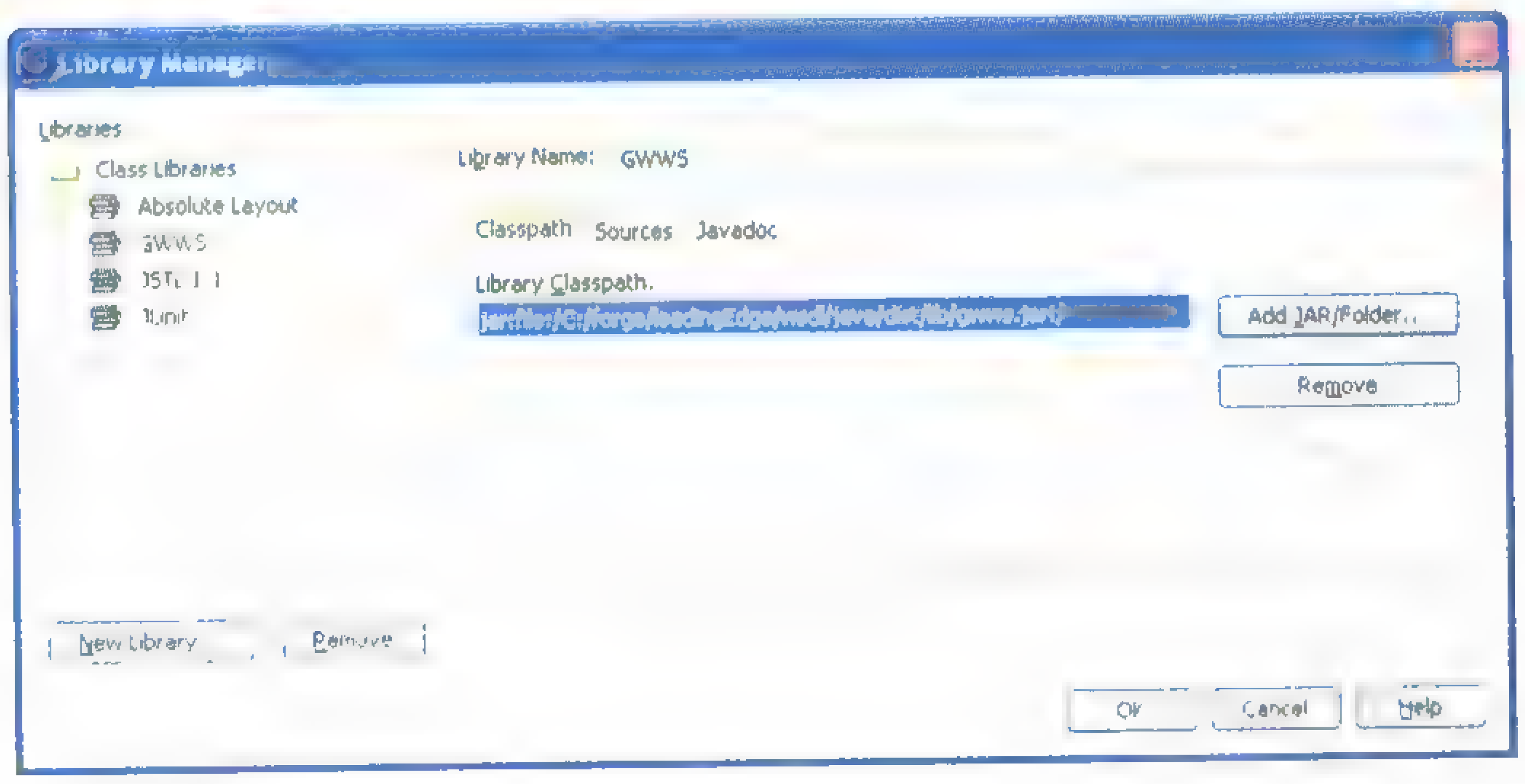
Even though the goal of GroupWise WSDL is to make it easier to create programs that directly access Post Office Agents, you don't have to use the WSDL. If you're proficient with XML, SOAP and HTTP, you can do all the underlying low-level programming yourself. Just stick to the schemas provided in the Developer Kit. It will take more work on your part, but it might give you a little more control or flexibility to accomplish what you want.

> Cut to the Chase

By allowing you to interact directly with Post Office Agents, the GroupWise Web Service enables you to easily and quickly create cross platform solutions that make it simple for administrators and developers to view, manage and manipulate the information stored in users' mailboxes. You can create custom applications that, from outside of GroupWise, can retrieve folder lists, do busy searches, manage proxy rights, generate reports, view items, deal with junk mail or a variety of other tasks that extend an administrator's capabilities.

No matter what you want to do, the bottom line is that the Novell GroupWise Web Service gives you a new option for getting direct access to the data stored in your users' mailboxes. It uses industry standards to simplify development efforts, reduce development time and provide cross-platform support. But best of all, it let's you programmatically cut to the chase, bringing you face to face with the mailbox information you need to solve your problems and produce the results you want. N

Figure 3 *To import the GroupWise WSDL into ... Java Integrated Development Environment, create a new ... and add the GroupWise WSDL gwws jar file into that newly cre...*



Other Helps

One of the particularly easy-to-use helps in the Developer Kit is a javadocs API document file called index-all.htm located in the folder .Java netbeans wsdl build src . It gives details on the GroupWise Web Services libraries, constructors, fields and methods. The javadocs file has several sections:

- **Package** provides a list of classes and interfaces for each package, with a summary for each package. It also includes categories for Enums, Exceptions, Errors and Annotation Types.
- **Class/Interface** provides class/interface descriptions, summary tables and detailed member descriptions for each class, interface, nested class and nested interface.
- **Annotation Type** includes declarations, descriptions, required element summaries, optional element summaries and details for each Annotation Type.
- **Enum** provides a separate page for each Enum with sections for declarations, descriptions, constant summaries and constant details.
- **Tree (Class Hierarchy)** contains a Class Hierarchy page for all packages, plus a hierarchy for each package. Each hierarchy page contains a list of classes and a list of interfaces.
- **Index** contains an alphabetic list of all classes, interfaces, constructors, methods and fields.
- **Serialized Form** each serializable or externalizable class has a description of its serialization fields and methods. This information would be of interest to re-implementors, not developers using the API.
- **Constant Field Values** lists the static final fields and their values.

Freeme

By Phil Karren and Kari Woolf

GroupWise: You Are Now Free to Roam About the Country—Any Country. Memos, Rolodexes, the desktop calendar and meeting around the water cooler are all yesterday's tools of office collaboration. With the arrival of e-mail and integrated collaboration applications, the paradigm has dramatically shifted. E-mail, electronic address books, appointments, tasks and instant messaging are now the norm for business and personal communication alike. And these applications are among the most-used software on virtually any desktop.

Memos, Rolodexes, the desktop calendar and meeting around the water cooler are all yesterday's tools of office collaboration. With the arrival of e mail and integrated collaboration applications, the paradigm has dramatically shifted. E mail, electronic address books, appointments, tasks and instant messaging are now the norm for business and personal communication alike. And these applications are among the most used software on virtually any desktop.

Novell GroupWise has been at the forefront of this digital trend with a secure, reliable and adaptable collaboration solution, and Novell has provided a steady stream of innovation to meet the needs of enterprises striving to enhance knowledge worker productivity. Now Novell is stepping up to meet the latest requirement in workgroup collaboration — wireless synchronization.

> A World Gone Wireless

According to a recent analyst report, the mobile worker population will increase from more than 650 million worldwide in 2004 to more than 850 million in 2009 (Source: *idc.com/getdoc.jsp?containerId-34124*). That's more than one-quarter of the global professional workforce. And the number of those workers accessing wireless e mail is predicted to grow from 6.5 million in 2005 to 123 million by 2009. For the administrator, this means going well beyond supporting a few wireless devices for executives. Sales personnel, floor managers, onsite service specialists, and even your average knowledge worker needs access to e-mail and other business critical data anytime, anywhere. Novell GroupWise 7 helps IT managers meet this growing demand.

> It's All About Choice

You've seen them in airports, doctor's waiting rooms—and even in the grocery checkout line: people with wireless devices that don't let location get in the way of what needs to be done; and they're doing a lot more than just talking on a cell phone. Today's mobile professionals are boosting productivity with smart phones—devices that give them access to e mail, appointments, attachments, Internet data, real time news flashes — even information from corporate databases and applications.

These smart devices are the lifeblood of every mobile professional and "home base" for many of the users you support. But the users themselves...well, they're definitely not all the same. BlackBerry users love their BlackBerry devices. Treo users love their Treos. In fact, if your enterprise is like most, you support a variety of wireless devices. In the wireless world, as in many others, choice is everything. So Novell has set out to offer the best and widest array of wireless synchronization solutions in the market.

If you have users on BlackBerry devices, Research In Motion (RIM) offers support through a strong partnership with Novell and stellar integration between GroupWise and the BlackBerry Enterprise Server (BES pronounced bez). If you have users on Palm Treos, HP iPAQ Pocket PCs, Nokia, Motorola or virtually any other device, integrated support will be provided in an upcoming GroupWise 7 enhancement pack through the Novell partnership with Intellisync.

For more information on both of these solutions, read on. You'll find all the information you need to support your wireless needs whatever combination of devices you're using.

Supporting BlackBerry Devices with BlackBerry Enterprise Server for Novell GroupWise

BlackBerry devices are the most popular mobile devices in the market; Gartner Group confirms RIM's leadership in their recent Magic Quadrants for Wireless E-mail (July 2004 and October 2005). As of November 26, 2005, RIM had more than 4.3 million subscribers. As some IT managers will tell you, BlackBerry users are "addicted." BlackBerry is also a global solution, with more than 150 wireless carriers selling BlackBerry devices and software in more than 60 countries around the world. Additionally, 60 percent of companies running BlackBerry Enterprise Server have already begun to deploy applications beyond e-mail, including SAP, Siebel, SalesForce.com and Remedy, to their mobile workforce.

Many of those BlackBerry-packing professionals are using them to get GroupWise information while on the move. In fact, thousands of installations already exist of BES for Novell GroupWise—the software that keeps all those BlackBerry devices synced up. That's why RIM and Novell have worked together to ensure that BES for Novell GroupWise keeps these users as productive as possible. A number of joint customers throughout the world are leveraging the benefits of this Novell/RIM partnership, including Trico Products and Central Washington University in the United States and Holmenkol in Europe. (Read the success stories for these companies online at *novell.com/success.*) These and many other customers rely on GroupWise and BES—a combination one IT manager refers to as "an e-mail workhorse" - to get the job done.

And with RIM's BlackBerry Connect initiative, devices featuring BlackBerry push delivery technology will connect to BES for Novell GroupWise, providing added device choice for BlackBerry users.

> User Features

The BlackBerry push based solution lets you see all of your GroupWise e-mail and instant messages on your devices. E-mail mes-

In the wireless world, as in many others, choice is everything. So Novell has set out to offer the best and widest array of wireless synchronization solutions in the market.

sage status is checked and updated frequently, so the Inbox on your BlackBerry stays current. In fact, IT managers confirm that BES synchronizes e-mail and Personal Information Management (PIM) data 24 hours a day, as long as a wireless signal is available. In addition, users can view many different kinds of attachments including MS Office, Adobe PDF, plain text and graphic formats such as JPG, BMP, GIF, PNG and TIFF.

PIM data, such as appointments, contacts, memos and tasks, are also synced between GroupWise and BlackBerry devices. You can accept or decline appointments, with or without comments, and get conflict notifications from your devices. In addition, you can use the remote address lookup feature to find GroupWise users in the system address book and add them as recipients for e-mails and meeting requests or add them as contacts in the device address book.

Anyone can activate their own device wirelessly, so there's no need to cradle the BlackBerry to a computer to set it up or keep it in sync. All you have to do is make sure your carrier has enabled the BlackBerry voice and data plan, and then enter your e-mail address and activation password.

> On the Back End

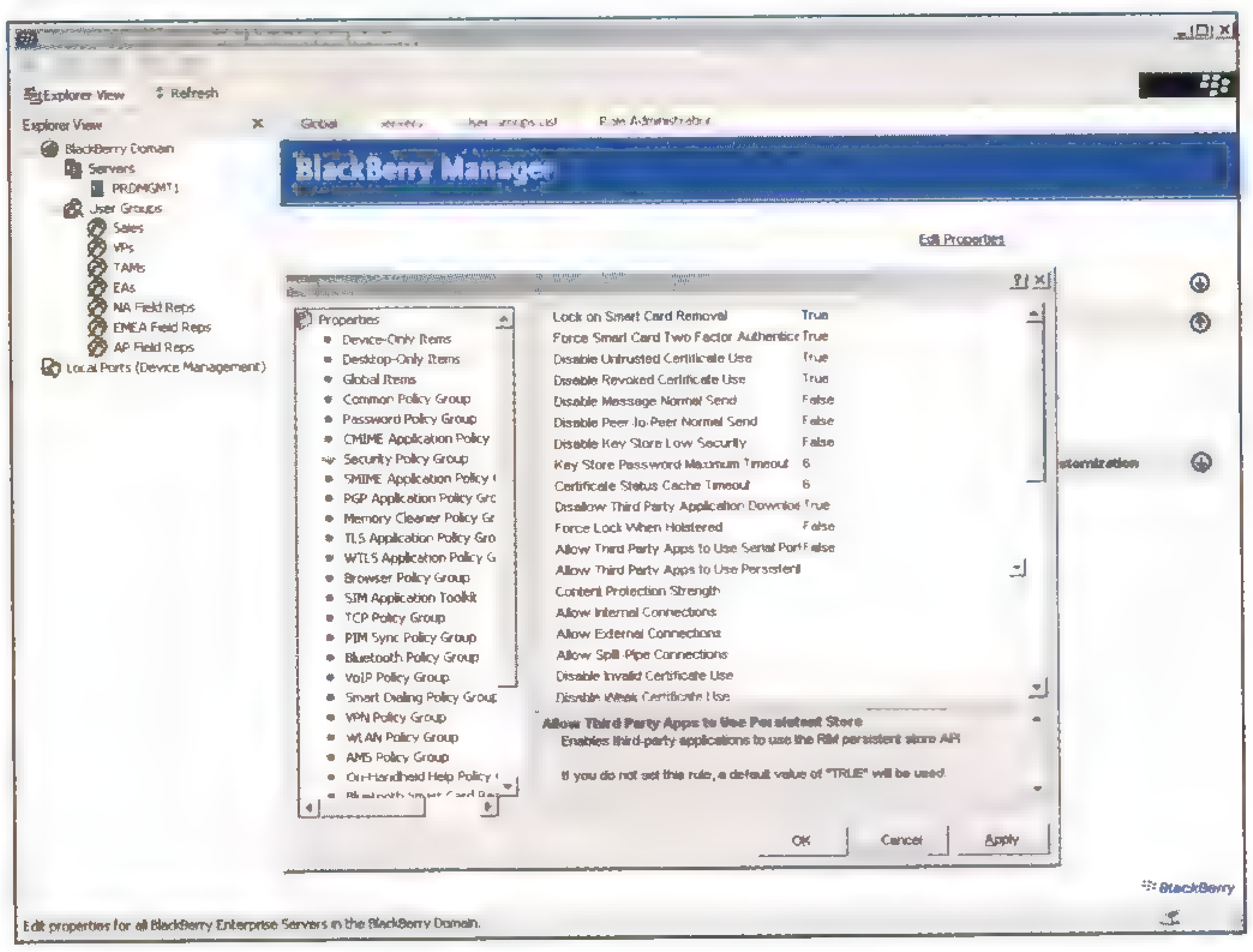
Installation of the BES server runs smoothly: it's as easy as selecting the default settings. The BES requires Windows Server 2000 or 2003 and communicates with GroupWise as a trusted application using the Object API.

Installed behind the firewall, BES securely syncs e-mail, instant messages, appointments, contacts, memos and tasks with BlackBerry devices through the Internet, RIM's Network Operation Center (NOC) or over any supported carrier network using one of several wireless technologies:

- GSM/GPRS/EDGE
- CDMA/EVDO
- iDEN
- Mobitex.

Figure 1 *Provisioning and maintaining users is easy. Lookups are done on the corporate address book to add users. You can also create and manage groups with the BlackBerry Manager*

Figure 2 *The simple user interface of BlackBerry Manager makes it easy to deploy new applications, troubleshoot device settings, manage mobile device policies and even wipe the BlackBerry clean of data if the device is lost*



You can also set up communication with WiFi enabled BlackBerry devices over your company's wireless 802.11b LAN.

Provisioning and maintaining users is also simple. (SEE FIGURE 1.) Lookups are done on the corporate address book to add users. The simple user interface of BlackBerry Manager makes it easy to deploy new applications, troubleshoot device settings, manage mobile device policies and even wipe the BlackBerry clean of data if the device is lost. (SEE FIGURE 2.) IT managers love RIM's solutions because of the overall ease of management. In fact, BlackBerry has the lowest TCO of any "mobile middleware solution," according to Scotia Capital (Source: *Equity Research: Daily Edge*, August 17, 2005).

> Security with BlackBerry

BlackBerry was designed from its inception to provide end-to end secure data communications between the server and BlackBerry devices. In fact, the digital security consulting firm @stake Inc. reviewed the BlackBerry security model and concluded that it "provides the necessary confidentiality, integrity and authentication" for wireless communications.

All wireless collaboration data is protected using 256 bit Advanced Encryption Standard, or AES (part of the U.S. National Institute of Standards (NIST) Federal Information Processing Standards Publication 140 (FIPS 140-2) developed for U.S. government non military agencies and contractors). BlackBerry devices are FIPS 140-2 certified. Application data is secured using a combination of AES and HTTPS in either proxy mode or end to-end mode.

You can set password policies to make password authentication mandatory for all users. By default, after 10 failed login attempts, all data on the BlackBerry is destroyed.

For their convenience, users can keep their own Web site and other passwords on the device itself using the Password Keeper. These passwords are also secured using AES.

At startup, the server initiates an authenticated, outbound connection through the company firewall using IP port 3101. In addition, only communications that can be encrypted and decrypted with a valid key are permitted between the server and the devices on the wireless network.

Finally, administrators love the security support for lost or stolen devices. When a user loses a device, you can lock the device, change the password or set the text on the device display. If a user's device is stolen, it's quick and easy to wipe out all the application data on the device.

> Application Integration

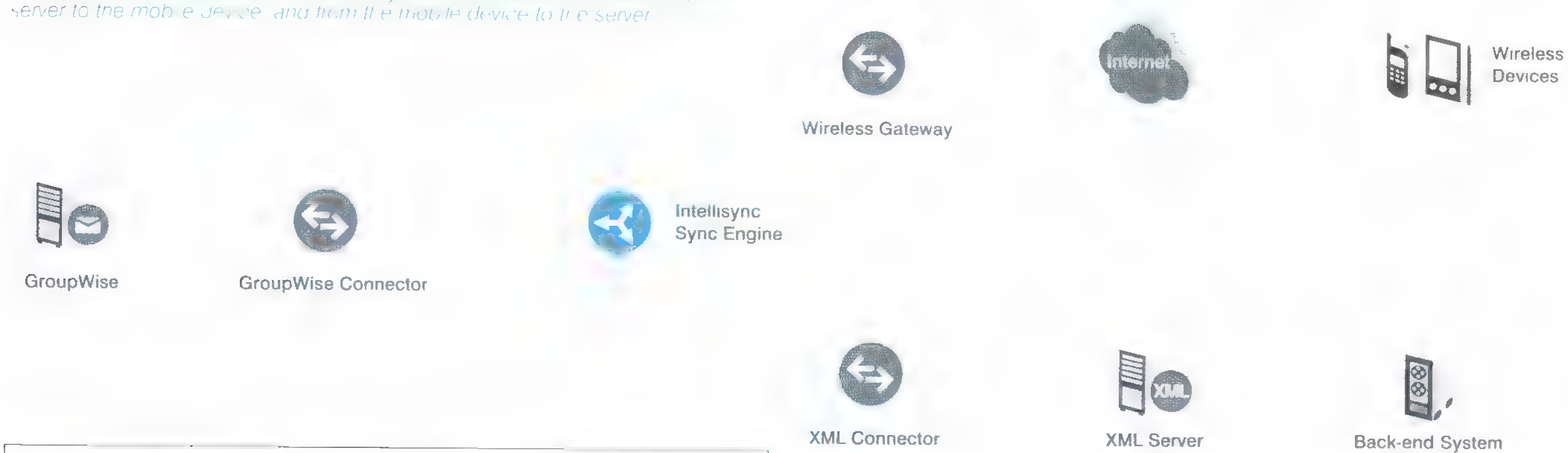
The BlackBerry Mobile Data System is a framework of developer tools, administrative services and BlackBerry device software that enables you to deploy enterprise and other applications to mobile users. It simplifies and speeds wireless application development and deployment by providing developers and IT professionals with a choice of tools that meet their requirements, skills and experience. It uses the same proven BlackBerry push delivery model and the advanced security features leveraged by BlackBerry e-mail.

Wireless Support With GroupWise Mobile Server, Powered by Intellisync

Although BlackBerry is a popular device in the mobile marketplace, it's not the only one. In fact, the market is diverse, made up of many hardware and software vendors that provide a broad range of choice for consumers. For most of these other devices, 400 of them in fact, Novell will provide the GroupWise Mobile Server, powered by Intellisync. Supporting these devices is not optional for GroupWise users and managers—it's a necessity.

Unlike the personal computer, which quickly converged on operating environment software from a single vendor, mobile devices are based on several different environments including Symbian, PalmOS, Java, BREW, SyncML and Windows Mobile. Hardware vendors

Figure 3 *The GroupWise Mobile Server syncs collaborative information from server to the mobile device, and from the mobile device to the server*



Intellisync Facts At-a-Glance

Intellisync was recently awarded Frost & Sullivan's 2005 Mobile Software Product Innovation award, and also named as a challenger in Gartner's most recent Magic Quadrants for Enterprise Wireless E-mail. Here are a few stats about the company

- in business since 1993
- 400 employees worldwide
- 4,500+ customers, including virtually all of the Fortune 1,000
- 20 million+ users
- 300 partners, including major carriers, hardware makers and software companies.

Research in Motion *RIM* Facts At-a-Glance

Gartner Group recently placed RIM in their Magic Quadrants for Wireless E-mail (July 2004 and October 2005)

- more than 4.3 million subscribers
- more than 150 wireless carriers
- software in more than 60 countries
- 60 percent of companies running BlackBerry Enterprise Server have already begun to deploy applications beyond e-mail including SAP, Siebel, SalesForce.com and Remedy to their mobile workforce.

include Palm, Nokia, Sony Ericsson, Motorola, HP, LG, Samsung, Siemens, Sharp, Kyocera and many others. Form factors also vary widely, ranging from small phones to PDA-like handhelds to tablet PCs. GroupWise Mobile Server, powered by Intellisync, supports all of these vendors and more, and does it with a consistent look and feel across all of these platforms.

To develop the essential collaborative function of syncing with the broad set of mobile handhelds available, Novell chose to partner with Intellisync because of its tradition of innovation, depth of experience, deep set of customers, rock-solid security and rich set of software and hardware partners. (For more details, see *Intellisync Facts At-a Glance.*)

When the GroupWise Mobile Server is released, GroupWise 7 customers on maintenance or upgrade protection will be able to download it free of charge. Customers who purchase GroupWise with maintenance or upgrade protection after the enhancement pack is released will also get the GroupWise Mobile Server. Either way, it means you'll be able to provide your users with e mail, appointments, tasks and notes from almost anywhere. This significant development has excited customers and partners across the world. Pierre Lams, founder of Handheld PCs, Ltd., a systems integrator in the United Kingdom, says that one of his large GroupWise customers was "delighted to hear about Novell's partnership with Intellisync."

> User Features

Support for mobile e-mail includes meeting requests, attachments, folder access, header size control, signatures, attachment filtering and more. You can sync calendars, create meetings and handle recurring meetings. Contacts and tasks also work flawlessly.

In addition, you can see almost any kind of attachment including MS Office, PDF, plain text and graphic formats including JPG, BMP, GIF, PNG and TIFF. You can even zoom, pan and rotate images.

All client software is downloaded from the GroupWise Mobile Server through a wireless carrier of your choice, or over WiFi, so there's no need to cradle the handheld to set it up. But you can still sync it with a cradle, as long as the PC is connected to the Internet.

> On the Back End

The server syncs collaborative information from the mobile device to the server, and from the server to the mobile device. (SEE FIGURE 3.) The server runs on Windows 2003. (Intellisync and Novell are working together to port the server to SUSE Linux Enterprise Server. Support for this platform will be available later.)

You can synchronize information over the wireless carrier of your choice, or over WiFi. In most cases, you'll deploy the server inside the DMZ, communicating with mobile devices over the wireless Internet using HTTP or HTTPS. You don't need a Network Operation Center (NOC) at the carrier.

GroupWise Mobile Server requires GroupWise 7 Service Pack 1 (SP1) or later to work, and communicates with GroupWise using the Simple Object Access Protocol (SOAP) interface. SOAP began shipping with GroupWise 7 in August, 2005. (In addition to enabling GroupWise to work with the GroupWise Mobile Server, SP1 includes iCal support, a low-bandwidth WebAccess option, Global Signatures, Shared Contacts for the Outlook Connector, IPv6 support for the Instant Messenger, and an enhanced GroupWise Monitor for SUSE Linux.)

One feature of Intellisync's technology is "push" support for synchronization of e-mail, appointments, contacts and tasks. When you enable the push technology, the server pushes data to the mobile handhelds as soon as it arrives in the user's Inbox; the handheld doesn't have to poll the server at regular intervals for new information.

Administration options include Inbox and Outbox settings regarding truncation lengths; whether to get attachments automatically, and if so what kinds; whether to remove old e-mails from the user's device (for example, anything over 7 days); and what sorts of devices to support (for example, PalmOS, Pocket PC, Symbian and so on).

> Secure Mobile Communications

You can choose from three encryption standards to ensure secure communication between the mobile device and the GroupWise Mobile Server:

- Triple Data Encryption Standard (DES), a 112-bit encryption scheme that uses three 56-bit keys
- Advanced Encryption Standard (AES), sometimes referred to as Rijndael, a block cipher standard with 128 bit keys
- Secure Sockets Layer (SSL).

Both Triple DES and AES are approved with the same FIPS 140 2 certification as the BlackBerry solution mentioned previously. All key exchanges are based on the Diffie-Hellman exchange protocol. You can also sync with no encryption at all if you don't require secure communications.

Passwords are never stored on the mobile device, but for user convenience, authentication credentials can be stored there, if you choose. You can also enforce a power-on password, and if configured, include an optional reauthentication after periods of inactivity.

GroupWise Mobile Server does not create any inbound initiated connections to the corporate firewall and uses packet-level filtering to ensure the data and sender are valid.

Besides making sure corporate data is secure while synchronizing, the GroupWise Mobile Server also has a "kill pill" to remotely deactivate devices and destroy data when a user leaves a device behind in an airport, taxi or anywhere else.

> Application Integration

In addition to syncing with mobile devices, GroupWise Mobile Server will provide the foundation for syncing between GroupWise and many different enterprise applications. Intellisync supports appointment, contact and task syncs with Siebel, Oracle, PeopleSoft, SalesLogix, Salesforce.com, Intuit, McKesson, Pivotal and others. Although Novell won't automatically support all of these applications syncing with GroupWise right out of the gate, the GroupWise team is working with Novell Consulting, Intellisync and others to identify applications to be supported.

Wireless Your Way

GroupWise is widely known as the most secure, reliable and adaptable collaboration product on the market. Security and reliability are obvious concepts, but what do you really need on the adaptability front? The freedom to support user productivity and business goals—whether that means running on Linux, Windows or a mix of platforms—and any combination of wireless devices you choose.

With its broad focus on wireless synchronization, Novell has set out to provide exactly this level of adaptability. BES v4.0 for GroupWise is a great choice for connecting GroupWise to the most popular set of mobile devices in North America (and growing fast everywhere else). And with the release of GroupWise Mobile Server, powered by Intellisync, users with mobile devices of almost any flavor will be able to collaborate anywhere, anytime. Whatever your wireless needs, GroupWise has the technology, partnerships and commitment, and delivers the best and broadest wireless support in the industry. N

Go ahead.

By Emmett Dulaney

It's open.

Novell openSUSE.org Promotes the Use of Linux Everywhere

Novell has done it again! It has further enhanced its support for, and commitment to, Linux and the open source movement by sponsoring a new project: openSUSE. The most visible manifestation of this support is the new Web site: openSUSE.org. You'll find a great deal of information related to SUSE and open source on this site. Not only will you find documentation and other links, but this is also where betas and development releases are posted. You can also report bugs through the Bugzilla database, participate as a developer and much more.

The openSUSE project was created to promote the use of Linux everywhere by providing free access to SUSE Linux, the most usable distribution of Linux on the market today. According to Novell, the goals of this project are three-fold:

1 Make SUSE Linux the easiest Linux distribution for anyone to obtain and the most widely used open source platform.
2 Provide an environment for open source collaboration that makes SUSE Linux the world's best Linux distribution for new and experienced Linux users.
3 Dramatically simplify and open the development and packaging process to make SUSE Linux the platform of choice for Linux hackers and application developers.

This isn't just a movement aimed at those who stay up until the wee hours of the morning digesting source code. Everyone in the Linux community, regardless of their prior knowledge, is encouraged to participate in some capacity in the project and there are many ways to do so as outlined at *opensuse.org/how_to_participate*. (SEE FIGURE 1)

Among them is a great need for those who are simply willing to test SUSE Linux and report problems; the greater the number of testers, the more stable and bug free the final build will be. Help is also needed to improve or localize the site, develop patches and packages, suggest new software to be included with the operating system, write documentation, and help other users.

In an interview with Greg Mancusi-Ungaro, Novell director of marketing for Linux and open source, he said, "We're moving from a closed model where the code was tested in house, to a completely open and transparent model," that is open to all input. Every voice in the Linux community now has the ability to use the software as it is being developed, help comment on it and refine it through each phase of the process.

On the openSUSE Web site, you can find links to upcoming events, news and project milestones. The events include those for Novell as well as those for Linux in general, as the company continues to move from a proprietary model to more of a portal-based one.

Novell will continue to package and sell SUSE Linux to users who would rather have a physical product in their hands than download from the Web. In addition to the physical box and media, the retail product will differ in that it will have printed copies of the manuals, include support and whatever commercial software is to be included along with the operating system.

That last item is very important, and you should note that when you download the software from the site, you get only the SUSE Linux operating system and not the other commercial software that accompanies the retail version of the product, such as the browser plugins. The components that aren't included are easy to obtain and install, but you'll need to plan your time so you don't start the process right before quitting time on a Friday afternoon.

The main reason for not including the other applications in the download version is because of the licensing agreements with the vendors of those applications; you must usually agree to each of their licenses to legally be in compliance with them.

Register at openSUSE.org if you want to edit the wiki or report bugs in bugzilla. Just give your e-mail address to subscribe to a mailing list. You can access everything else, including code, as an anonymous user.

From the perspective of potential customers, the project is a definite plus for Novell. William Steen, Information Technology Coordinator for Tipton County, Indiana, is in the process of determining whether to stay with the platform currently in place or move to an open source solution and was impressed by what he saw: "I think the openSUSE project illustrates Novell's commitment to the open source movement. They didn't come into the Linux market and start shutting the doors behind them which they easily could have done given their size," he said. "Instead, they came into the market and offered to make sure the doors stay open for everyone else as well. You have to admire them for that, and it is one of the considerations we are looking at as we evaluate migrating to SUSE Linux." Steen mentioned how some of the county commissioners are afraid of being locked into proprietary solutions and this gives him one more bullet to use when trying to sell the migration to them.

On openSUSE.org, communication of issues related to the project is done through mailing lists, IRC (Internet Relay Chat), and Web forums. Documentation includes the usual FAQs, product highlights and much more. Currently, the SUSE Linux Reference is available online in its entirety as a 786-page PDF. You will be hard pressed to find such a comprehensive, and current manual anywhere else for free.

User documentation on the site (SEE FIGURE 2) is divided into several sections:

- **New Users Start Here** is a collection of items most relevant to users who are new to Linux and/or new to SUSE Linux.
- **Installation** contains documents and articles obviously covering

"...the openSUSE project illustrates Novell's commitment to the open source movement. They didn't come into the Linux market and start shutting the doors behind them—which they easily could have done given their size. Instead, they came into the market and [made] sure the doors stay open for everyone else as well." —William Steen IT Coordinator Ipton County, Indiana

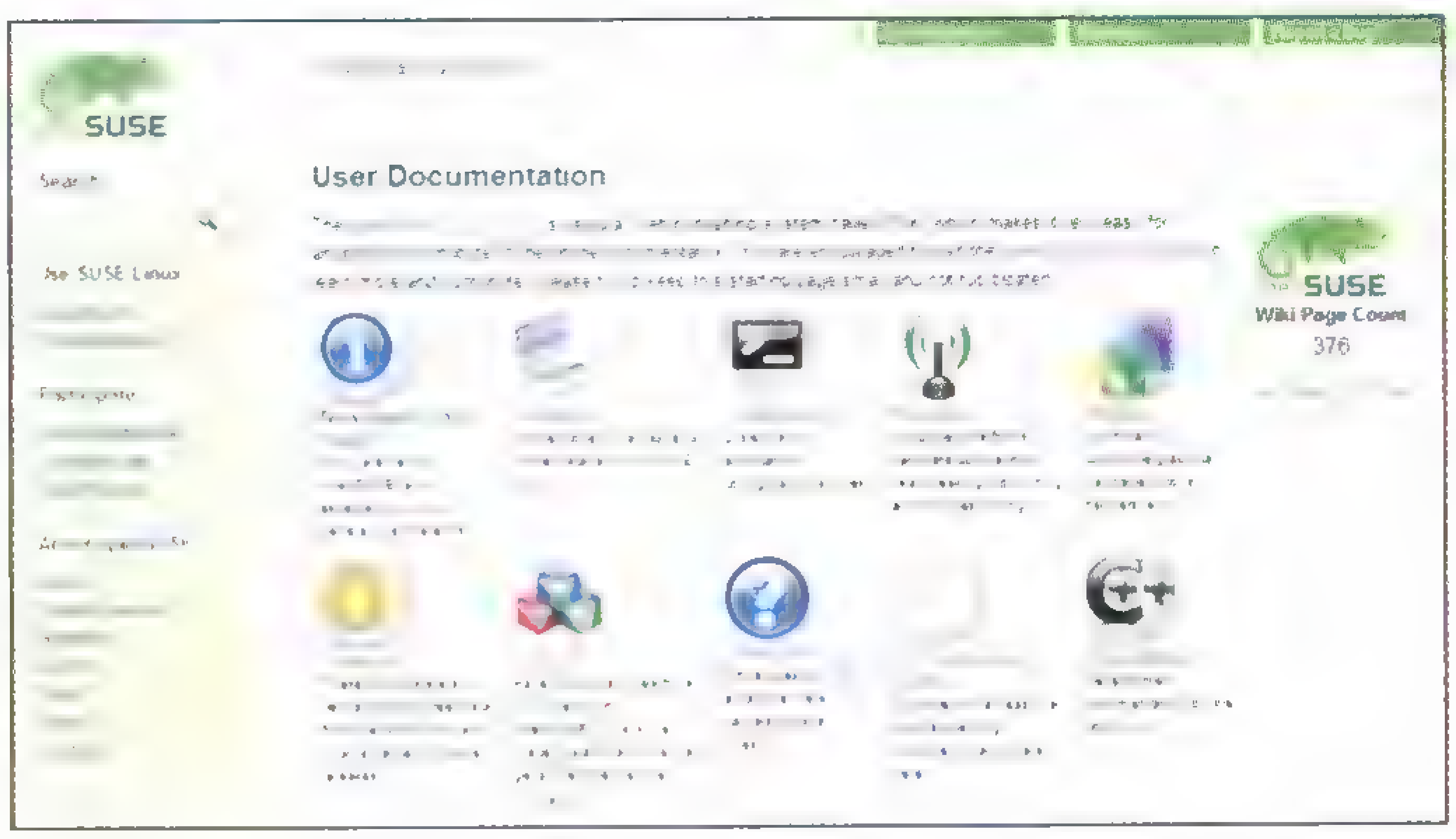
the installation of the OS. For the most part, installation is amazingly simple: download the ISO images, burn them onto CD or DVD and start the installation from those. It gets a bit more complicated when you start installing across the network and such, and that is why these installation files are available on the site.

- Configuration holds information on tweaking the system as well as applications.
- Hardware not only contains lists of the supported platforms and hardware, but also troubleshooting information and notes on fine tuning and optimizing specific settings.
- Artwork houses the usual collection of wallpaper, icons and miscellaneous graphics.
- Wishlists currently has three subsections: Use the Package Wishlist to suggest including a package you think the current build should have (SEE FIGURE 3); use the Feature Wishlist to suggest a feature you'd like to have included; and use the OpenSUSE Wishlist for the project itself, Web site or other such item.
- User Projects offers the ability to start a subproject and get other people onboard and involved.
- Users FAQ not only lets you look for answers to the questions you have, but you can also post new questions that aren't answered in the FAQ.
- Tips, Tricks and How-tos lets you search for others' documentation or create your own and post it to be shared with everyone else in the community.
- Development currently has items on Qt and how to set up a build server.

Opening the doors to developers creates an enormous opportunity for Novell's Linux to become the dominant Linux distribution throughout the world. Jeff Durham, a consultant for small- to medium-sized businesses in the Midwest United States and a creator of several small applications, couldn't be more pleased with the way Novell is opening its source code to developers: "It has long been the

Figure 1 Everyon[illegible] of their prior [illegible] n the openSUSE [illegible] or developing the code [illegible]

Figure 2 The [illegible] areas ranging from New Users [illegible] and Configuration



For more information on openSUSE, visit the site at openSUSE.org; not only will you be impressed by the simplicity of it, as compared to many other sites, but you'll also find the answers to most of your questions.

belief that SUSE Linux is the most robust operating system on the market; however, Novell was dragging behind by not offering something similar to Red Hat's Fedora for developers to be able to freely get the code and work with it. With openSUSE now underway, they've not only followed that lead, but also have the opportunity to surpass Red Hat." Durham has already downloaded the latest builds from the site and is working with them. The Project Milestones, posted on the main page, offer dates when subsequent builds will be available and he has circled them on his desk calendar.

Novell's commitment to Linux development does not stop merely at SUSE Linux. Instead, Novell is creating a build service for external developers that is based on the AutoBuild system to help developers create applications that run on multiple architectures. AutoBuild simplifies the development process of writing applications and assures the apps will run—as they should, and be supported—throughout the community. The build service will too.

One process currently underway at the project is the exporting of the SUSE Support Database (known as SDB) to a wiki. By turning it into a wiki, it allows anyone to edit and enhance the entries within the database. Localized wikis will exist to account for language differences; German, French and Spanish are the first three planned, in addition to English.

While the openSUSE project has a lot to offer now, the project is far from finished. Plans call for phase two to be implemented in March or April 2006 and includes a simplified patch submission process and personalized developer accounts. Phase three is slated to follow in the middle of 2006 and calls for a complete community infrastructure allowing, among other things, packagers to quickly create packages and include them in the latest test versions of the distribution.

As such, the openSUSE project is the door into the Linux world for new users, developers and enthusiasts worldwide. By making it easier for users to access the operating system, it makes it easier for them to adopt it. By opening the code to developers, it simplifies their work and will help make SUSE Linux the most used Linux distribution in the world. Finally, by welcoming enthusiasts, and listening to their concerns and wishes, the operating system benefits with each successive generation of the product.

Finally, in addition to the openSUSE project, Novell and other members of the openSUSE project also support a plethora of other projects currently in the works. These projects range from Beagle; which is a search tool; to Mono; which provides the necessary software to develop and run .NET client and server applications on Linux, Solaris, Mac OS X, Windows and Unix; and everything in between. You can find a current list of supported projects at *opensuse.org/projects*.

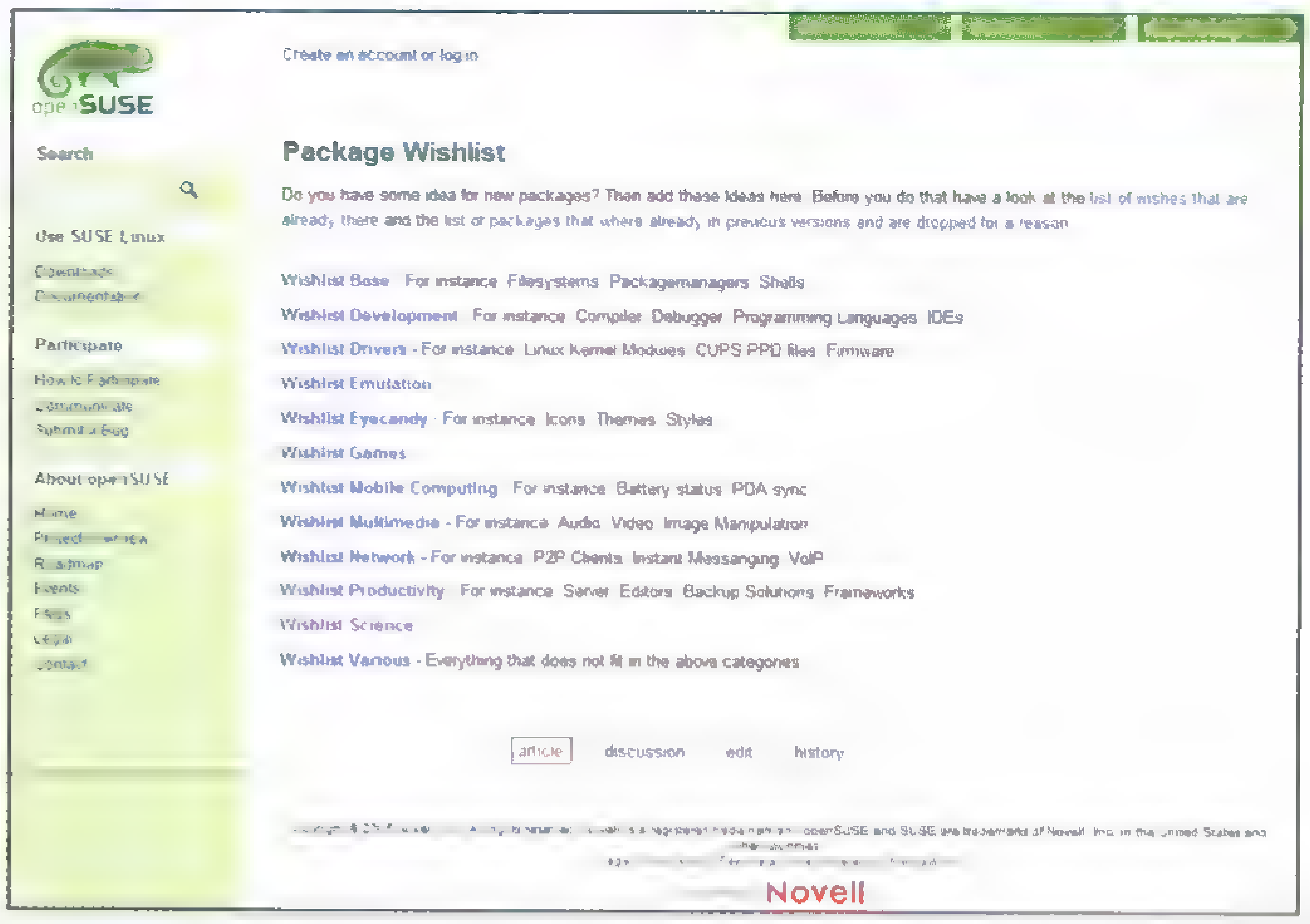
> More Information

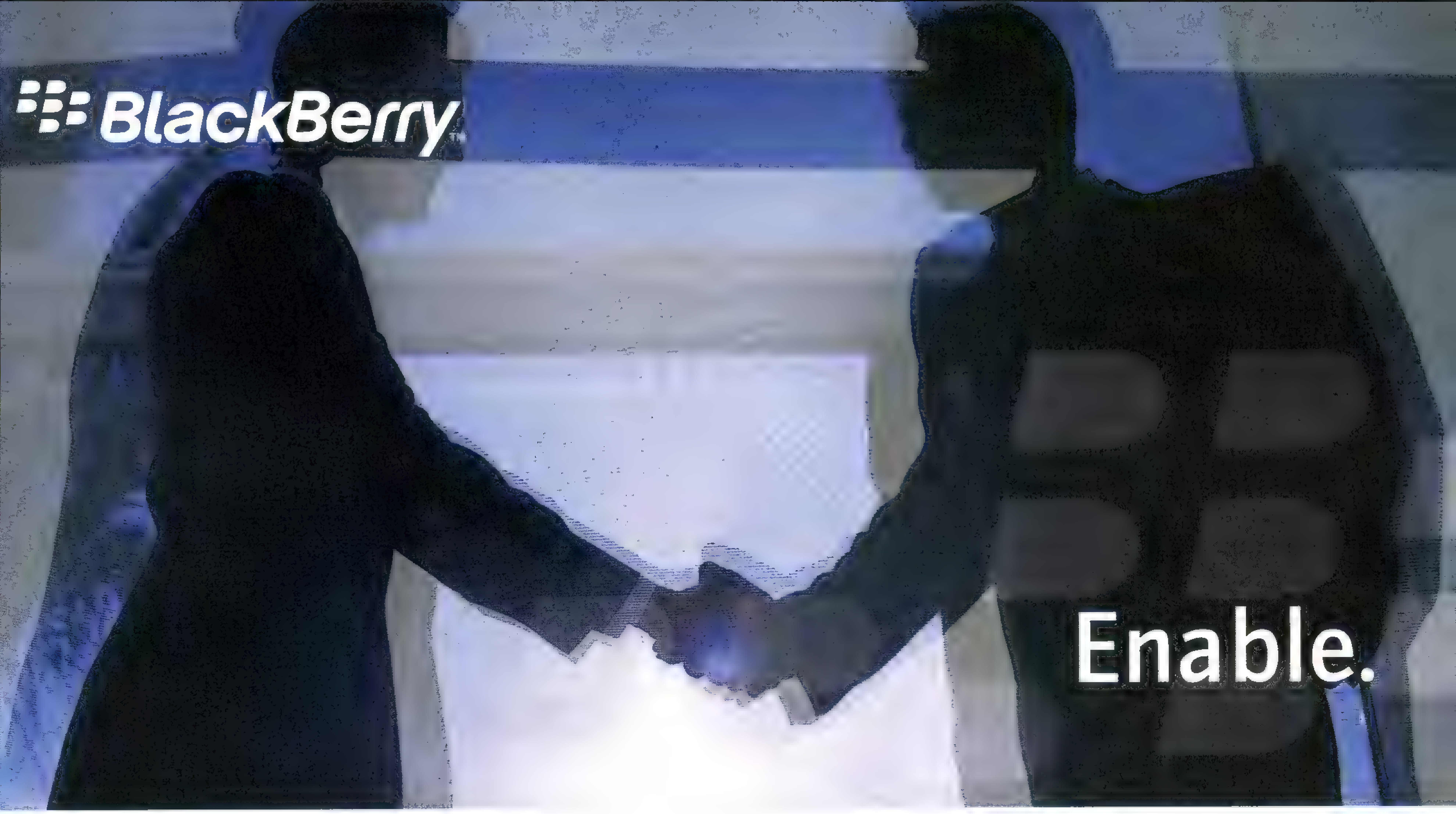
For more information on openSUSE, visit the site at openSUSE.org; not only will you be impressed by the simplicity of it, as compared to many other sites, but you'll also find the answers to most of your questions. I also highly recommend listening to, and viewing, the Webcast between Greg Mancusi-Ungaro and Ted Haeger, Director of User Communities, that was put together for the Novell Users International group. This can be accessed online at *nuinet.com/?pg webcasts/opensuse/highbandwidth*.

> About the Author

Emmett Dulaney is the author of *the Novell Certified Linux Professional (CLP) Study Guide* (ISBN: 0 672-32719 8) and *Novell Linux Desktop 9 Administrator's Handbook* (ISBN: 0-672-32790-2) by Novell Press. He holds a number of Linux and other certifications. **N**

Figure 3 The Wishlists section currently has three subsections: Use the Package Wishlist to suggest including a package you think the current build should have, use the Feature Wishlist to suggest a feature you'd like to have included; and use the openSUSE Wishlist for the project itself, Web site or other such item.





Wirelessly Extend Novell GroupWise

The BlackBerry Enterprise Solution™ now works with Novell® GroupWise® to empower your mobile users with wireless access to email, phone, Internet, Instant Messaging (IM), SMS, organizer applications and enterprise data.*

The BlackBerry Enterprise Solution for Novell GroupWise offers your organization innovative server software, advanced wireless devices, wireless network service and essential support programs and services, giving you a flexible solution that provides advanced security features and leverages existing technology investments.

Learn How Your Organization Can Benefit By Wirelessly Extending Novell GroupWise Using BlackBerry

For more information on free seminars, events and whitepapers, visit the BlackBerry® Enterprise Resource Center at www.resourcecenter.blackberry.com or www.blackberry.com/go/groupwise

Visit our exhibitor booth (#P330) at BrainShare 2006 the week of March 19th for a chance to win a FREE BlackBerry device!

*Check with service provider for availability, roaming arrangements, service plans and features and availability on BlackBerry Connect and BlackBerry Built-In devices. Certain features outlined in this document require a minimum version of BlackBerry Enterprise Server Software, BlackBerry Desktop Software, and/or BlackBerry device software and may require additional development or third party products and/or services for access to corporate applications Prior to subscribing to or implementing any third party products and services, it is your responsibility to ensure that the airtime service provider you are working with has agreed to support all of the features of the third party products and services. Installation and use of third party products and services with RIM's products and services may require one or more patent, trademark or copyright licenses in order to avoid infringement of the intellectual property rights of others. You are solely responsible for determining whether such third party licenses are required and are responsible for acquiring any such licenses. To the extent that such intellectual property licenses may be required, RIM expressly recommends that you do not install or use these products and services until all such applicable licenses have been acquired by you or on your behalf. Your use of third party software shall be governed by and subject to you agreeing to the terms of separate software licenses, if any, for those products or services. Any third party products or services that are provided with RIM's products and services are provided "as is". RIM makes no representation, warranty or guarantee whatsoever in relation to the third party products or services and RIM assumes no liability whatsoever in relation to the third party products and services even if RIM has been advised of the possibility of such damages or can anticipate such damages

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who what when where

By Kathryn B. Jenkins

Novell Identity Manager 3: Automating User Lifecycle Management

You know that business success depends on having the right tools and information available to the right people when they need them. That requires you to effectively manage identities—the people and the resources throughout your enterprise.

It's fairly straightforward: With identity management, you more easily improve service, resolve security weaknesses and reduce IT administrative costs. Without it, new employees sit idle, waiting for access to needed business tools while former employees have access to those tools for days, or even weeks, after they leave.

Okay, you're thinking—nothing new there. Identity management has become a necessity for today's enterprises. What is new is the technology that provides identity and effective control over both automatic processes and those that require human intervention.

The new solution streamlines approval processes and enables delegation of authority while providing self-service features that ease the management burden on your staff. It does all that by leveraging, rather than replacing, your existing business processes and technology investments.

> Identity Management Through the Complete User Lifecycle

The recently released Novell Identity Manager 3 helps you securely manage identity and access for your ever-changing user community through complete management of the entire user lifecycle across all systems and organizational boundaries. It lets you deliver first-day access to essential resources, synchronize passwords across connected systems, instantly modify or revoke access rights and enforce security and regulatory compliance.

For resources that require human approval, the system automatically notifies appropriate approvers and enables them to quickly and easily provide or deny access. (SEE FIGURE 1.) It even allows them to easily delegate authority when necessary.

From the time an employee walks through the door on his first day with your company until he closes the door on his last, Identity Manager 3 has you covered—whether the processes can be done automatically or need human intervention. You get all this from three important capabilities of Identity Manager 3: automated role-based provisioning, workflow-based provisioning and password management.

Let's take a look at how each of these work to bring you the agility and security you need.

1 Automated Role-Based Provisioning

Using your business rules, Identity Manager 3 automatically provisions resources to your users based on their roles and relationships in your organization. New employees can access everything they need on their first day on the job without your team manually entering user information on multiple systems. You get more done with fewer people, which saves you money and lets your staff focus on more strategic projects.

For example, let's say the HR manager at Sacred Heart Medical Corporation (SHMC) has just entered a record for Stanford Oveson, a new physician at one of its hospitals. In response, Novell Identity Manager 3 automatically:

- creates accounts in other applications based on Dr. Oveson's role as a physician; in turn, those accounts provide authoritative identity information. For example, SHMC uses Microsoft Exchange for e-mail addresses. Microsoft Exchange creates the e-mail address *soveson@shmc.com*, and Identity Manager 3 communicates that to all connected systems.
- transforms data into appropriate formats for each system. For example, PeopleSoft uses a phone number format of xxx-xxx-xxxx, while the Microsoft Exchange format is (xxx)xxxxxxx. Identity Manager automatically formats each correctly.
- updates all relevant information in all connected applications. For example, PeopleSoft shows that Dr. Oveson works at the company's hospital in Chicago, so Identity Manager creates an Exchange mailbox for him in the Chicago container. When Dr. Oveson later moves to the group's hospital in Austin, Texas, Identity Manager automatically repeats the synchronization process.

2 Workflow-Based Provisioning

Obviously, there are times when you don't want to—or can't—completely automate the provisioning of all resources. Sometimes a human needs to decide whether a resource should be granted. No problem: a new Identity Manager add-on module integrates human-based, or "workflow," provisioning. In other words, the Provisioning module for Identity Manager electronically manages and streamlines the entire process each time a resource is requested, even if human approval is required.

With Identity Manager 3, there is one system for both automatic and human-based provisioning, and one Identity Vault that stores all provisioned information. The benefits are obvious: no more paper chase since all requests are made and approved electronically, and the automated approval process lets people get to work as quickly as possible.

On his first day at work, Dr. Oveson opens the new Identity

The recently released **Novell Identity Manager 3** helps you securely manage identity and access for your ever-changing user community through complete management of the entire user lifecycle across all systems and organizational boundaries. It lets you deliver first-day access to essential resources, synchronize passwords across connected systems, instantly modify or revoke access rights and **enforce security and regulatory compliance.**

Manager Web-based User Application to see what resources are available and how he can get approval to use them. On that browser page is a list of resources he can simply click to initiate the workflow approval process for each.

Dr. Oveson wants access to the Oracle financial system, so he clicks to request access to that resource. Hospital policy requires that his request be approved by both Judith Allen and Steven Chapman in HR. Identity Manager 3 automatically e-mails Allen with the request. She simply clicks a link to bring up the approval form, then clicks the appropriate place on the form to approve the request.

Between patient visits, Dr. Oveson accesses the User Application to check the status of his request. He sees that Allen has approved his request, but Chapman's approval is still pending.

In the meantime, Steven Chapman—who is vacationing in Cancun—decides to check his e-mail. Using a browser available in his hotel lobby, he logs in and discovers a long list of approval tasks that he forgot to assign to someone else while he was gone.

Chapman e-mails his manager and asks if he can temporarily reassign the approvals on his task list to another manager. Since Kathryn Johnson is an assistant manager with responsibility for Oracle financials, Chapman's manager assigns her to be Chapman's authorized delegate for all Oracle requests. Within minutes, Johnson receives Dr. Oveson's request for access to Oracle financials. Because doctors are not normally allowed to see hospital financials, Johnson denies the request. Hospital policies were protected with a few simple clicks, even though one of the approvers was lounging on the beach in Mexico.

Before leaving on his next vacation, Chapman can delegate authority to appropriate department heads, their assistants, or even temporary proxies. He can do the same thing the next month, when he'll be busy preparing annual reports.

Simply put, Identity Manager 3 lets you make sure that provisioning approval decisions are always made by appropriate authorities with direct responsibility for the involved employees. It also lets you avoid delays if people are out of the office or swamped with other work.

Figure 1 *Novell Identity Manager 3 delivers advanced workflow-based provisioning capabilities, automating the entire process each time a resource is requested, even if human approval is required.*

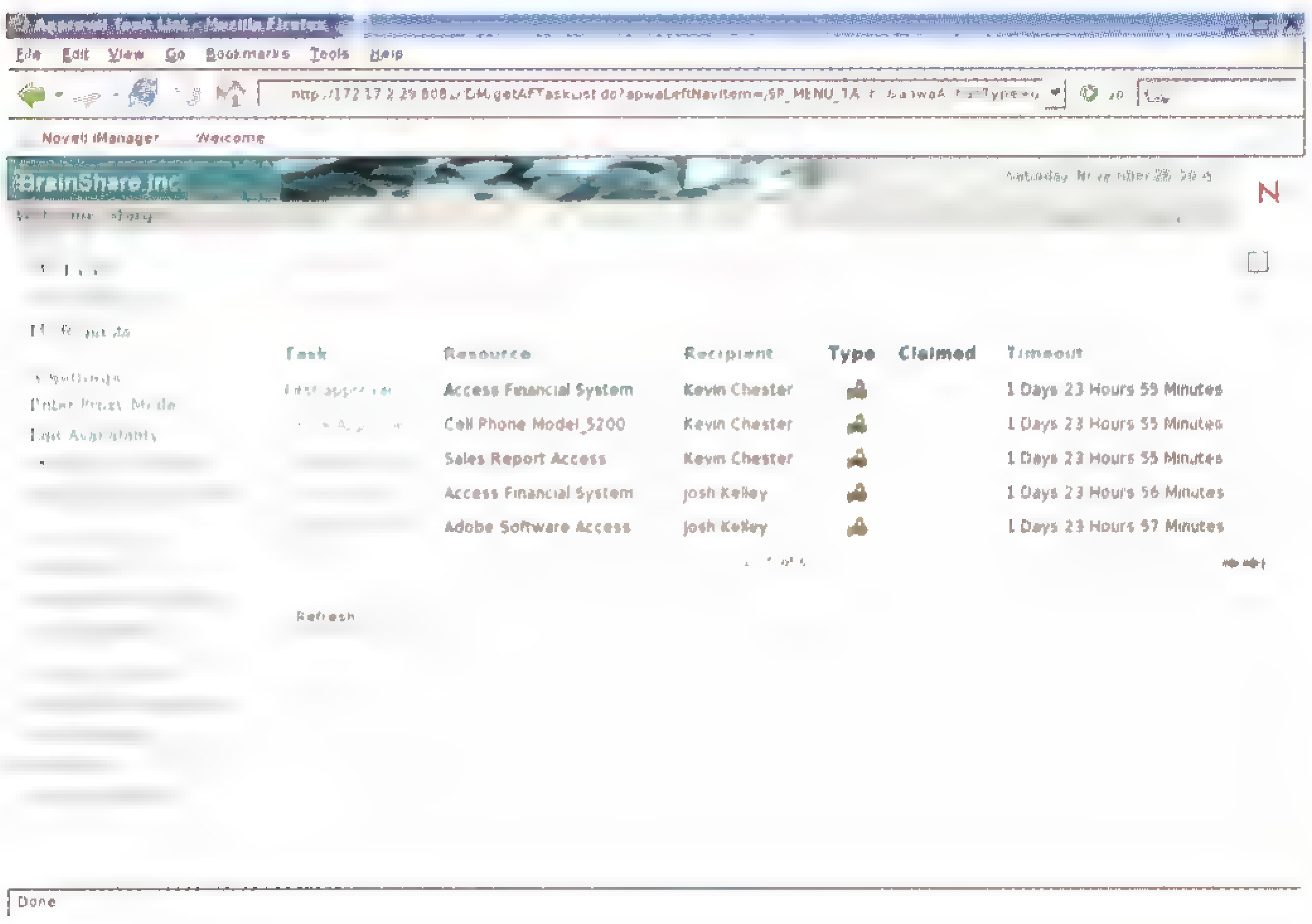
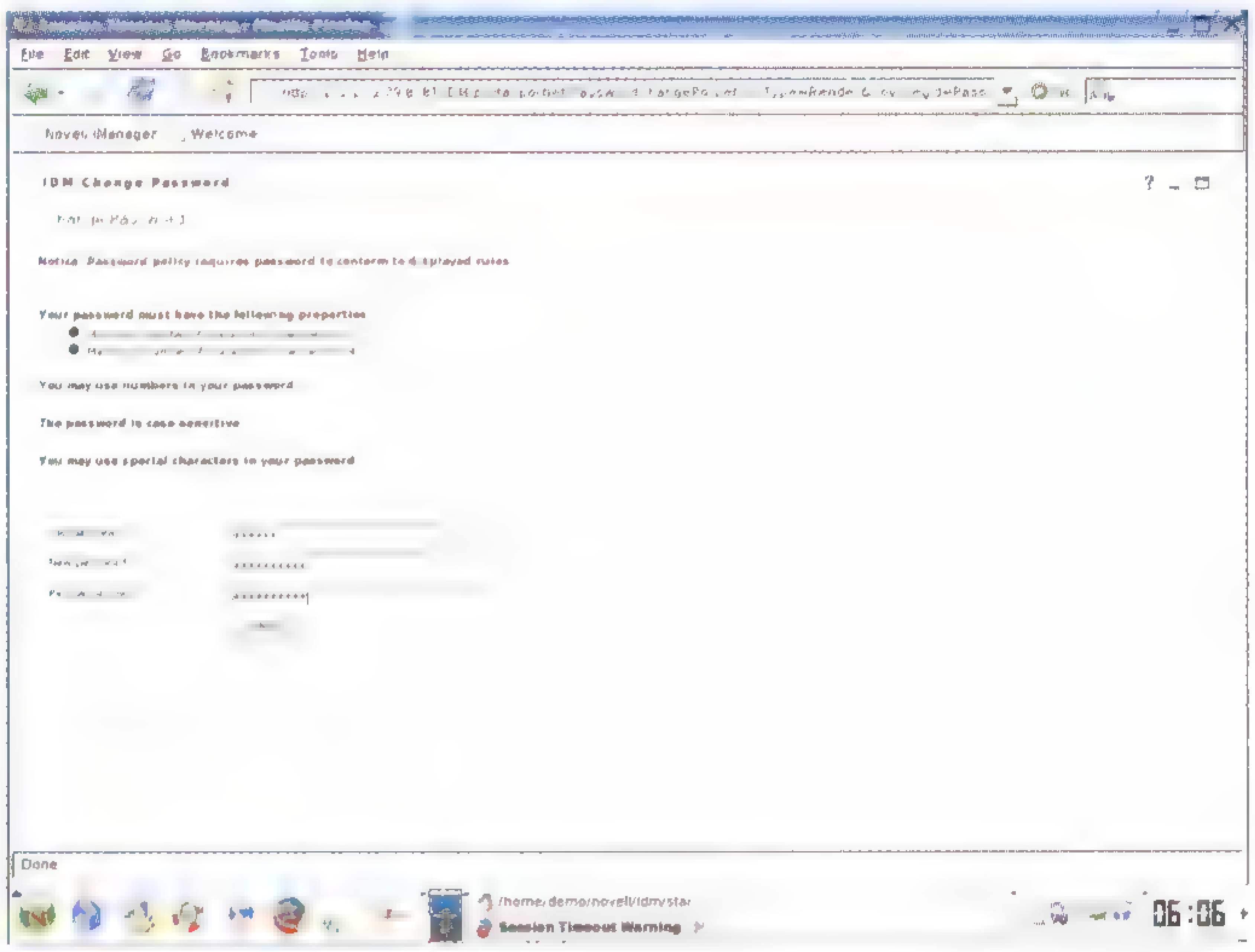


Figure 2 *Novell Identity Manager 3 makes it easy for users to manage their own passwords, enabling users to remember, create, change and reset their password without calling the help desk.*



Identity is a common thread in many of today's enterprise security issues. And without a common identity foundation, each new solution you add creates another silo of identity and adds to your **security** problems.

3 Password Management

Normally, an employee who forgets his password must call the help desk for a password reset eating up his own valuable time and driving up support costs. But with Novell Identity Manager 3 you can synchronize a user's passwords to provide a single password to all systems. Users are more likely to remember a single password. But if they don't, they can receive hints or change the password through the User Application tool. Users can also manage their passwords using the native password interfaces in systems such as Microsoft Windows. (SEE FIGURE 2.)

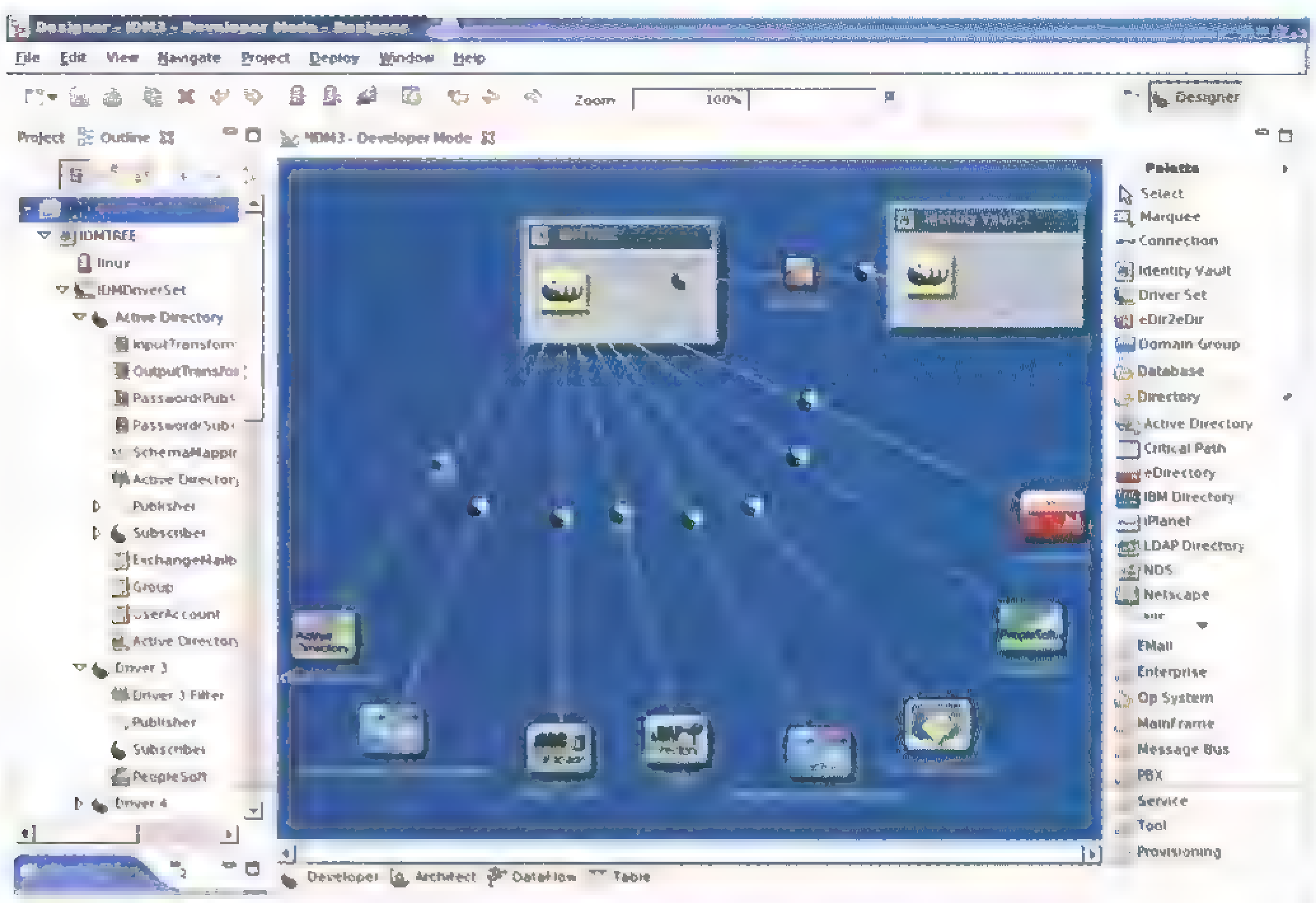
When Dr. Oveson forgets his password, the User Application comes to the rescue. It allows him to remember, create, change and reset his own password without calling the help desk and taking up an IT administrator's time.

When Dr. Oveson visits the User Application he is given one of the following administrator-defined options:

- *Password hint* The administrator decides whether the system delivers the hint immediately on the screen or by e mail.
- *Password reset with challenge and response* One or more challenge questions are displayed on screen. These can include questions originally created by Dr. Oveson himself, by the Identity Manager administrator, or a combination of both. When Dr. Oveson answers the questions correctly, he is permitted to change his own password. The new password is automatically checked for policy compliance, then updated and synchronized with all connected systems.

With Identity Manager, you can ensure that passwords your users set are secure: you can create and enforce strong, system wide password policies to protect your company against password related attacks.

Figure 3 [illegible]ger 3 reduces the cost and complexity of identity [illegible]ns with Designer for Identity Manager, a new set of [illegible]



Reduced Complexity with Visual Design

Another exciting new feature of Novell Identity Manager 3 is Designer, a set of visual configuration tools that provide a simple, yet powerful way to design and configure what you implement. (See Figure 3.) With Designer, you can:

- graphically model your implementation
- re-use configurations to help reduce deployment time frames
- create and test "what-if" scenarios before you deploy them to ensure proper policy definition
- automatically generate project documentation of all implementation details
- work offline to safely configure implementations outside of the production environment
- maintain project version control
- define and manage policies such as data transformation, placement and matching.

> Reassignment and Provisioning

The capabilities of Identity Manager 3 combine to help you manage the user's complete life cycle. For example, several years after he transfers to the hospital in Austin, Dr. Oveson is promoted to chief of staff at that facility. The promotion, of course, generates a number of changes in his identity information – and creates the need to update numerous records. With only a single change in the HR system, Identity Manager 3 propagates the identity information throughout the enterprise. Here's what happens as a result of that single entry:

- Dr.Oveson is automatically given access to the new systems he needs as chief of staff.
- Access is instantly shut off to the systems he is no longer allowed to use.
- When Dr. Oveson moves from his office on the third floor to the new chief of staff office complex, his address is automatically updated in the system, and the update is distributed to all affected applications.
- Dr. Oveson now reports to a new manager. All systems are updated for example, the appropriate employee-to manager relationship is changed in the financial applications, which affects the expense report approval process.

A valuable time saver in cases of promotions and transfers, the feature is also a vital security measure. With a single change, you can revoke user access rights across all systems in real time. As a result, former employees and business partners are completely deprovisioned when their business relationship with you ends. You gain instant protection against disgruntled ex employees, remove access to sensitive information, and eliminate lingering service expenses tied to former employees' user accounts.

> The Right Identity Management Foundation

Identity is a common thread in many of today's enterprise security issues. And without a common identity foundation, each new solution you add creates another silo of identity and adds to your security problems.

Novell Identity Manager 3 removes barriers between your business systems and enables information to securely flow to your authorized users. You have the foundation you need to securely deliver the right resources to the right people anytime, anywhere. Your business rules are used by the system to recognize and immediately deliver the right resources to the right people based on who they are and their role or relationship with your organization.

Novell Identity Manager automatically:
- creates accounts in other applications based on user roles
- distributes identity information obtained from other applications
- transforms data into appropriate formats for each system
- updates all relevant information in all connected applications.

Created with market leading technology and extensive experience in implementing complex identity management solutions, Novell Identity Manager 3 provides you with an identity management foundation that can support your complex business environment and evolving business practices. With the innovative solutions in Identity Manager 3, Novell can help your business gain the agility required for future growth, while retaining the world class security you've come to expect from Novell. **N**

PasswordSmith
for eDirectory
Your key to password management

Key Features:

- Eliminates 30% of helpdesk incidents
- Gracefully handles forgotten passwords
- Synchronize one password across your enterprise
- Self-Service: create, change or reset passwords
- Clears locked out status
- No iManager dependencies
- FIPS encryption
- Integrates with existing portals, legacy, and web applications
- Supports all browsers
- Novell Client integration optional
- Windows Login screen integration optional
- Expandable and open so you can add your own features
- Apply your own corporate branding

For more information contact Dudley Smith at 703-652-9364 or passwordsmith@trivir.com.

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Audit

Novell Audit 2.0

Making the Good Even Better

By Tonia Conger

Novell Audit signs and chains your events so you have nonrepudiation. That means you log and record event data in such a way that you can prove events have not been tampered with and that your record is complete.

Let's talk about the iPod for a minute. I love mine. I was introduced to the technology last year by my boyfriend who had me convinced I was nothing but prehistoric if I didn't have those distinct white ear buds in my ears while exercising or taking public transportation. Since then I've used my iPod to train for a triathlon, to help avoid conversation on airplanes and, just this last August, I even used it to usher in our wedding soundtrack. What a perfect union: us and our iPods, I mean.

But wait. Now there's an iPod Nano. It's impossibly small, has a color display and up to 14 hours of battery life. How could something so good get even better? That's just the question you might find yourself asking when you hear Novell is releasing the next version of Novell Audit (formerly Novell Nsure Audit) early in 2006.

Now let's step back and talk about why you should audit in the first place and what the previous versions of Audit did for you. Then I'll cover the new features and product enhancements you'll enjoy shortly with Audit 2.0. And, if you have them, stick those white ear buds in and read this article with some enlightening music in the background. I recommend something with trumpets.

> Why Audit?

Whether you have healthcare records, product designs, payroll and employee information or financial histories, your company network has information that must be secure. As you know, that's no small feat.

To protect your electronic assets, you probably have security policies to ensure compliance with government regulations, such as the Health Insurance Portability & Accountability Act (HIPAA), the Sarbanes Oxley Act, the Gramm Leach Bliley Act or the United Kingdom's Data Protection Act.

Whatever the case, as a network administrator, you likely translate those security policies into system wide rules that enforce the various external and internal policies.

After you've implemented your auditing strategy, you need a way to assess overall compliance with company wide policies, respond

Figure 1 You can get a bird's eye view of each application that is plugged into Audit and logging events to the Platform Agents

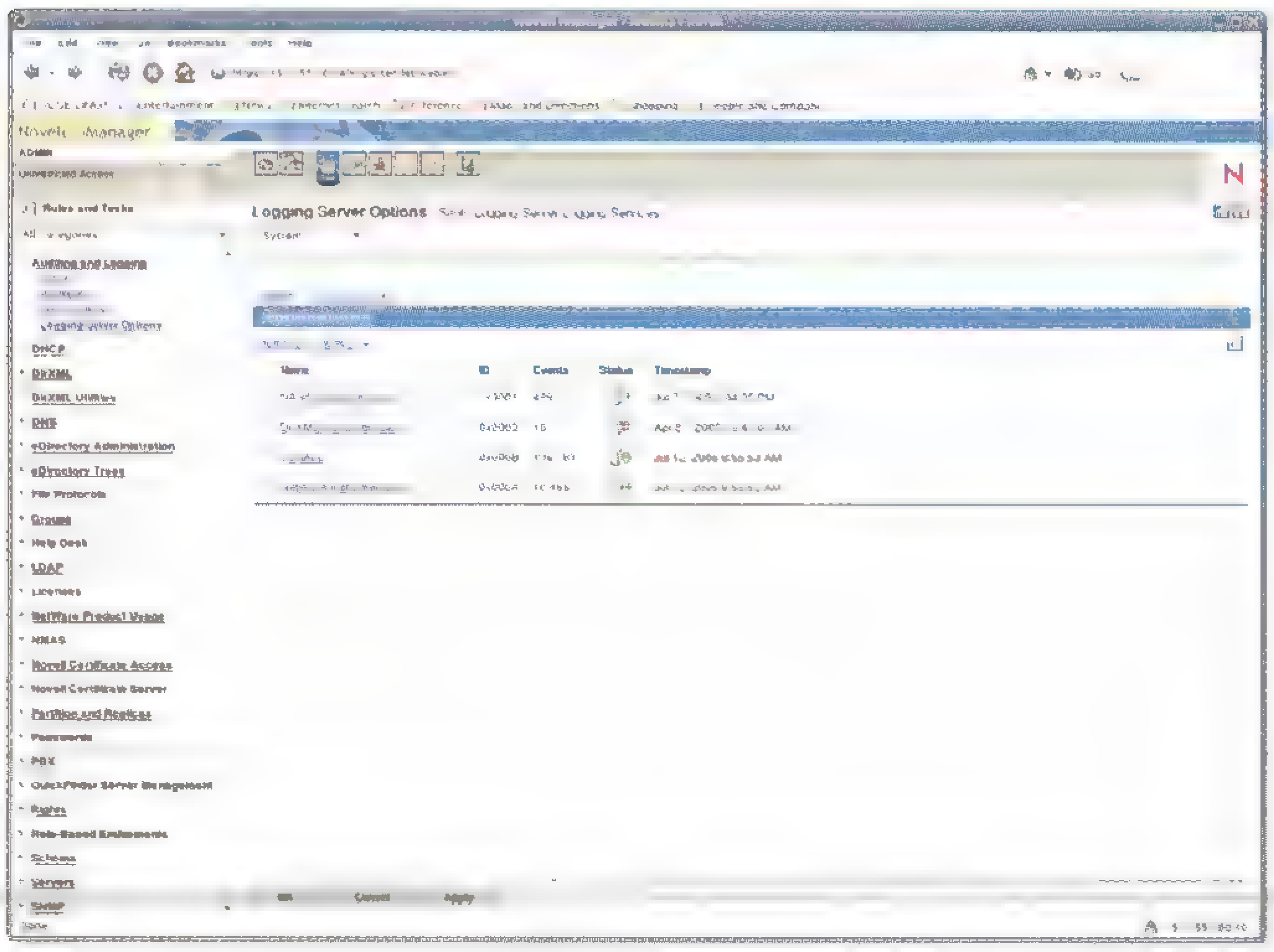
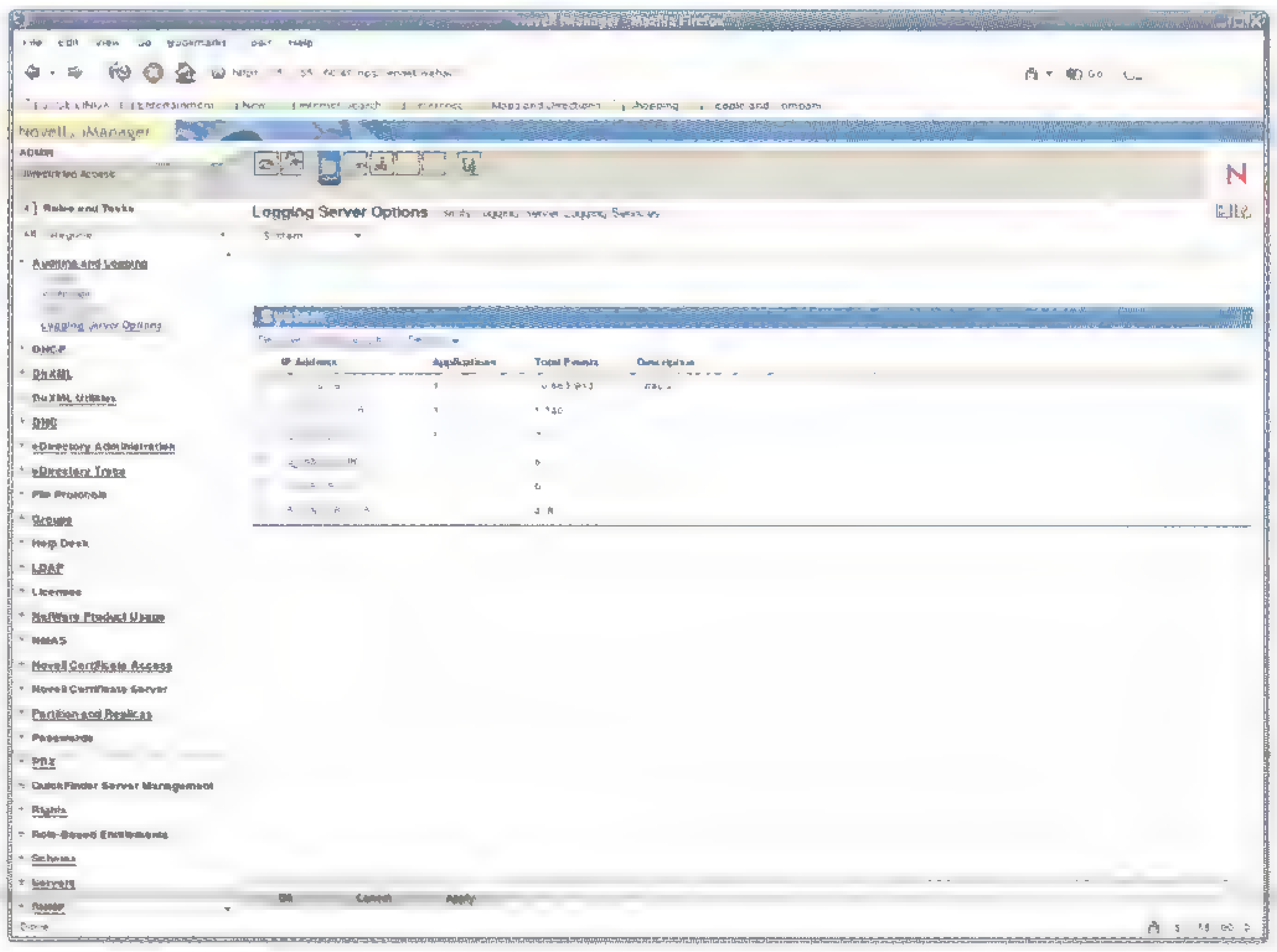


Figure 2 You can harvest connection statistics such as the number of clients connected and the number of events being logged for each client



quickly to violations, pull and analyze logged data and produce reports to prove that all your regulations are being met. To sum it up, you have to know and regulate what's going on in every corner of your network—at all times. Feeling overwhelmed yet?

> Past Versions

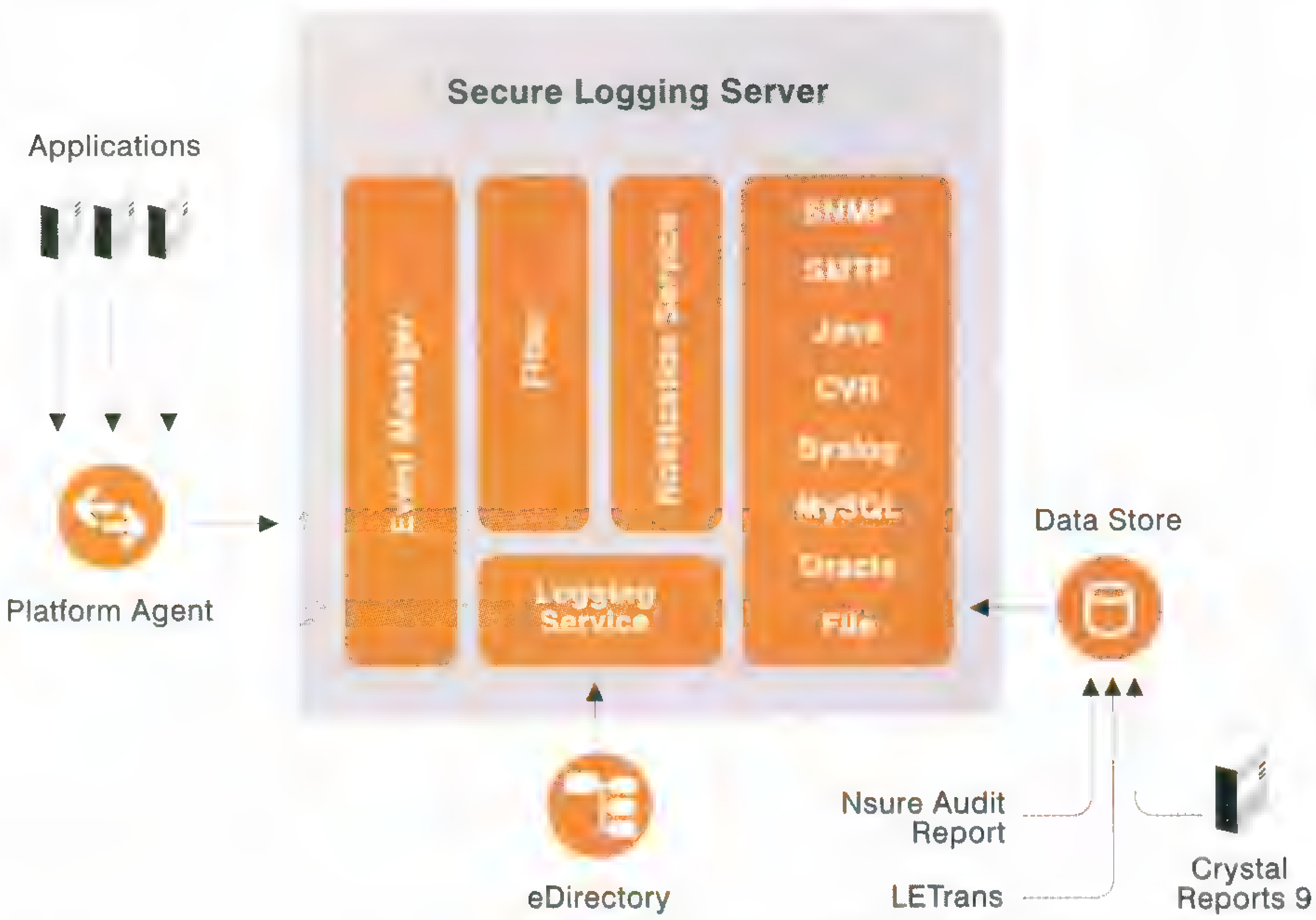
Novell (Nsure) Audit 1.0 shipped in 2003 providing a replacement for Auditcon and Novell Advanced Auditing Services (NAAS), as well as a logging foundation for Novell products such as Identity Manager, iChain, BorderManager and eDirectory. Audit is the result of years of experience Novell has under its belt developing some of the most secure enterprise software solutions in the industry.

Versions 1.0.1 – 1.0.3 soon followed the initial release and focused on improving stability and fault tolerance, standardized the event format and introduced additional notification channels.

> What Comprises Audit?

Novell Audit is a client-server solution with four primary components:

1. Platform Agent the client portion of the Novell auditing system. The Platform Agent receives logging information and system requests from authenticated applications and transmits the information to the Secure Logging Server.
2. Secure Logging Server the server component of the Novell auditing system. The Secure Logging Server manages the flow of information to and from the Novell auditing system. In other words, it receives incoming events and requests from the Platform Agents, logs information to the data store, monitors designated events, and provides filtering and notification services. You can also configure it to automatically reset critical system attributes according to a specified policy.
3. Data Store the repository where audit data is stored. Novell Audit protects log data from record modification, insertion or deletion by allowing only one program component, the Secure Logging Server, to write events to the data store. Using its available channel drivers, Novell Audit can log events to the following storage devices:
   - Flat file in the file system
   - MySQL database
   - Oracle database
   - Microsoft SQL Server database
   - Syslog database.



+ **Reporting Applications** Novell Audit provides two tools you can use to generate reports from MySQL, Microsoft SQL Server and Oracle data stores.

- Novell Audit Report is a Windows based, Open Database Connectivity (ODBC) compliant application that can generate reports from Oracle and MySQL data stores. It includes predefined reports and you can integrate it with Crystal Reports to get full custom reporting capabilities.
- iManager is a browser based, Java Database Connectivity (JDBC) compliant application that can generate reports from MySQL data stores.

> How Does Audit Work?

In basic terms, these components work together like this: the Platform Agent collects event data from the Logging Applications running on the server or workstation. (SEE FIGURE 1.) In nonrepudiative mode, the Platform Agent (or Logging Application) then digitally signs each event before transmitting it over a mutually authenticated and encrypted connection to the Secure Logging Server. (For more information on nonrepudiation and signing, see *Audit Signing and Chaining* below.)

The Platform Agent and Secure Logging Server establish this secure communication channel using Transport Layer Security (TLS).

The Secure Logging Server writes the data to a persistent data store, such as My SQL, Oracle or a flat file. The reporting applications query the data store and generate reports. Simultaneously, the Secure Logging Server evaluates the data to determine if any alerts are required or if any monitored values have changed.

> Audit Signing and Chaining

Novell Audit helps you achieve nonrepudiation through a process Novell refers to as the signing and chaining of events. In the context of auditing, nonrepudiation means that you log and record event data in such a way that you can prove that events have not been tampered with and that your record is complete. And that's important — especially in today's society.

Novell Audit components work together to protect the integrity of your logged data by signing and chaining events. Here's how:

Signing is the process whereby the Platform Agent (or, in some cases, the Logging Application) affixes a digital signature to each event it receives before forwarding the event data to the Secure Logging Server. This signature enables the Secure Logging Server to verify the integrity of the event data it receives and thus ensure that the event data has not been tampered with.

Chaining is the process whereby the Platform Agent (or in some cases, the Logging Application) includes a hash of the previous event (from the same Logging Application) with each new event from a given Logging Application. The hash (along with the data from the next event) is also signed. This hash enables the Secure Logging Server to verify that all events are in the data store and that none of them have been removed.

Through signing and chaining, Novell Audit protects your data against various types of security breaches, such as rogue administrators attempting to cover their tracks.

> What's New with Novell Audit 2.0

NEW PRODUCT FEATURES

| **Windows Event Collector**

The Window Events Collector runs as a service on Windows 2000 / XP / 2003.

This new feature retrieves events from the various Windows event logs including:

- Application log
- Security log
- System log
- Directory Service log
- File Replication Service log

Figure 3 Using the Web-based management tool iManager, you can gather real time server statistics such as memory used, running time, total connections and events received

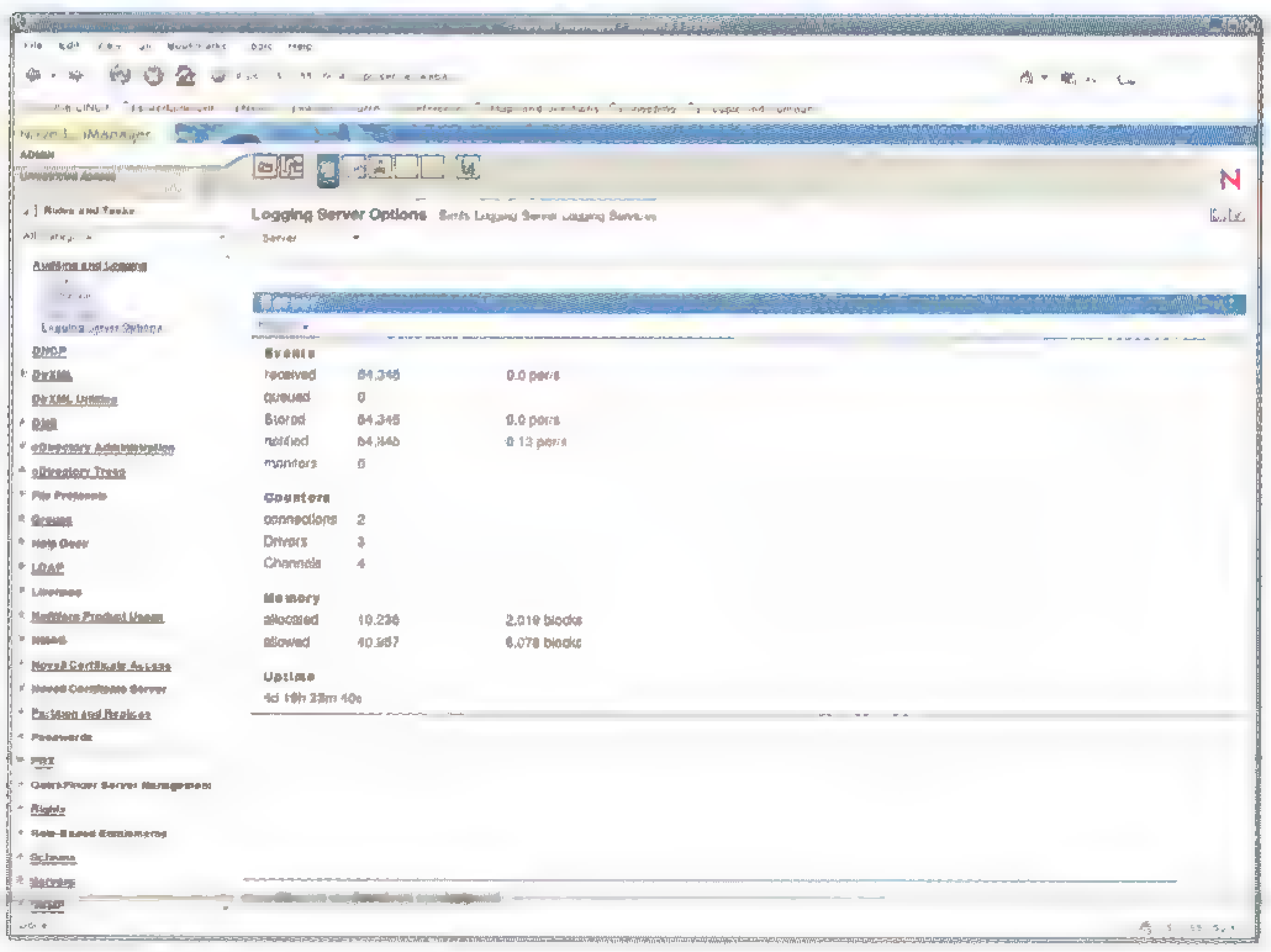
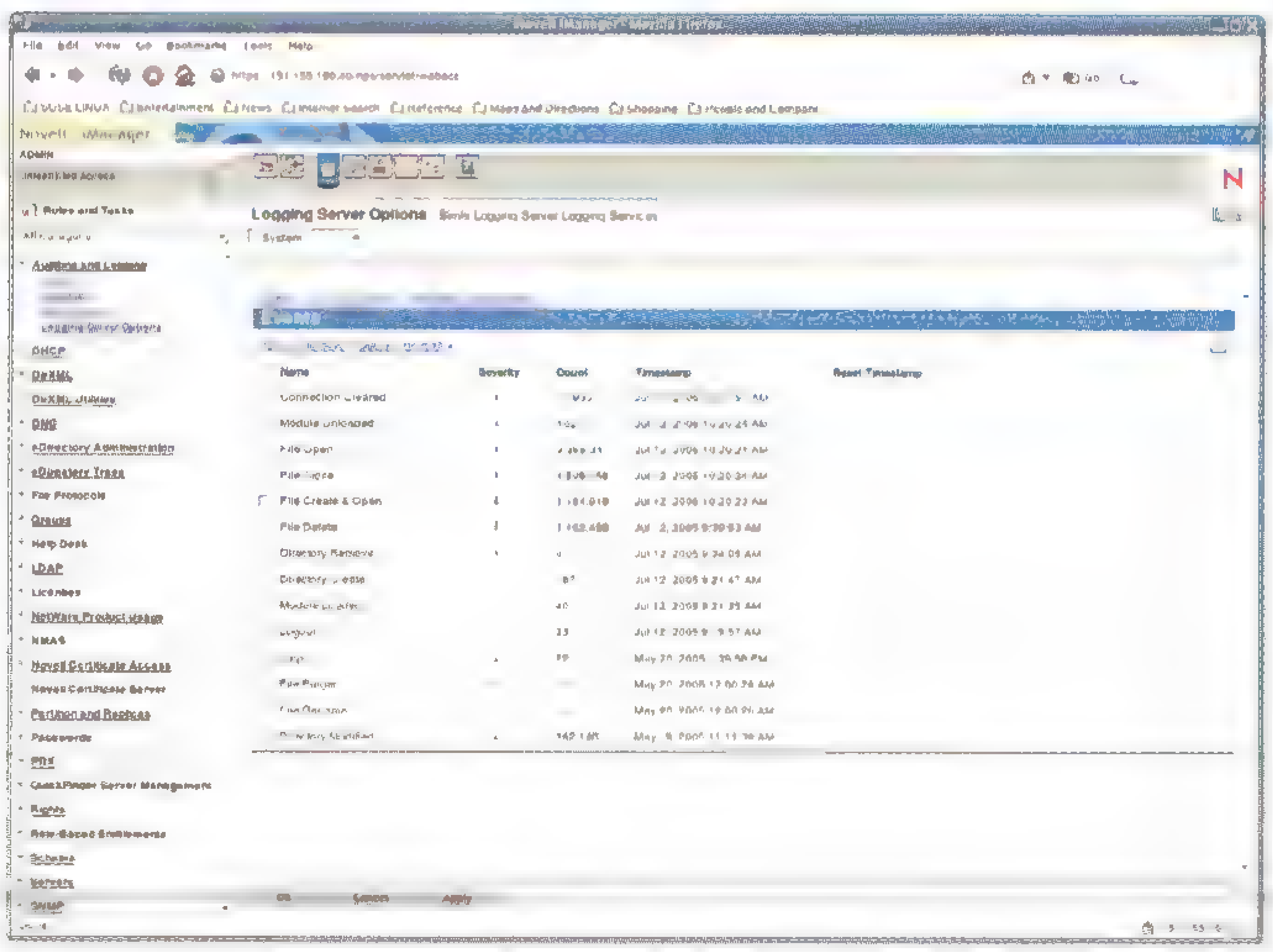


Figure 4 You can drill down even further and monitor each event being logged and how often they are coming in



- Domain Name Server (DNS) log.

Windows events are collected and sent to the Secure Log Server for processing by Novell Audit.

2 **New Notification Channel**

Audit 2.0 implements the Java Message Service (JMS) channel as a JMS Producer client application. It receives event messages from the Novell Audit event notification system, maps the event information into JMS messages and sends them to a JMS bus. JMS Consumer applications can then retrieve the JMS messages from this destination.

3 **Log File Parser**

The Log File Parser allows consumption of existing text logs without needing to instrument the application. This means that Novell Audit can collect events from applications — previously not possible — by harvesting events from text based log files such as syslog on both UNIX and Linux systems, Apache Error Logs and ZEN Application Launcher logs. (SEE FIGURE 2.) The events are parsed and formatted in the Novell Audit event structure so they can be processed by Novell Audit. The Log File Parser has a simple user interface, allowing administrators to quickly integrate new application data in Novell Audit.

NEW PRODUCT ENHANCEMENTS

1 **Monitoring**

The Monitor channel provides logging system statistics in the easy-to-use management Web tool — iManager. (SEE FIGURE 3.) When the Monitor Channel object is enabled, each Secure Logging Server object includes the Monitor tab as one of its Logging Server options. The Monitor tab provides the following information:

- total number of events logged during the current server uptime
- average number of events logged per second (this is averaged over a three second interval)
- IP addresses and descriptions of the clients (Platform Agents) currently logging events to the current Secure Logging Server (SEE FIGURE 4.)
- applications logging events to each Platform Agent
- events logged by each agent.

2 **Improved Event Filtering**

In previous versions of Novell Audit, all event notification filtering took place at the Secure Logging Server rather than with the Platform Agents. Novell Audit 2.0 allows administrators to implement event filters at the Platform Agent using each logging application's associated application object. Pushing event filtering down to the Platform Agent minimizes traffic between the Platform Agent and the Secure Logging Server, decreases the load on the Secure Logging Server, and conserves disk space in the central data store.

As you can see, previous versions of Novell Audit have successfully simplified the job of securing your network since 2003. But just like my iPod and the Nano, the product has gotten even better. With features enhancing every thing from collecting, monitoring, filtering and notifying of event data, this is definitely a good thing — made even better. **N**

Novell Audit 2.0 At a Glance

Components
1. Platform Agent
2. Secure Logging Server
3. Data Store
4. Reporting Applications

New Features
1. Windows Event Collector
2. New Notification Channel
3. Log File Parser

Enhancements
1. Monitoring
2. Improved Event Filtering

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By Michael Wilkinson


Novell Secure Login

As you arrive at work, you worry whether today might be the day. You approach your computer with trepidation and turn it on. At the login screen, you slowly punch in your special row of asterisks and click the OK button. After a few seconds your worst fears are realized; you're informed you have 14 days to come up with a new password. You turn your mouse pad over, scratch off your current password and try to think of something you haven't used before.

As you type in your pet's name, you're informed of some new security requirements that your new password must meet. These new requirements include special characters, upper-case letters, numbers and the length of the password. Aghast, you look around at the items on your desk for inspiration, but nothing comes.

This is the mindset of your typical network user. The last thing they want to hassle with is password management. This type of user is not trying to come up with a password scheme based on mathematical algorithms that maximize the security of the network. All they want is to quickly change their password to something they will remember in 10 minutes. Beyond their system password, if they have to access a network application which requires user credentials, they tend to act a lot like electricity: when discharged, electricity heads to ground by way of the path of least resistance.

A user's path of least resistance is to choose the same password for the application that they use to log in to the system. In math, we refer to it as the "least common denominator," where the user has one common password which is easy to remember and is based on something simple or common to them. Isn't it ironic that the strict security policies put in place to safeguard the network, end up having the opposite affect?

To go one step further, factor in the number of network or Internet based applications that the user needs to access. In many organizations, users access upwards of eight different systems or applications. These applications might include CRM systems such as SAP, terminal emulation to legacy main frame applications or even custom, internally developed Web applications.

Each application has its own unique password change policy and format requirements. In this scenario, the Nirvana of a single, simple password for all applications lasts only a few days, after which the variation of password requirements and combinations explodes exponentially forcing the user into what could be considered the 10th ring of hell; in Dante's The Divine Comedy, Virgil guides Dante through the nine rings of hell. Had Dante written in the 21st century, he surely would have included a 10th ring dedicated to the types of suffering endured by you and your users, due to out-of-control identity and password management issues.

> Direct and Hidden Costs of Password Management

According to different analyst reports, suffering in that 10th ring costs enterprises anywhere from $25 to $50 USD every time a user calls the help desk with a password-related issue. For an organization with 10,000 users, this could easily cost more than $100,000 per year. This yearly, hard cost doesn't take into account the soft costs associated with the loss of productivity while users wait for passwords to be reset.

In an effort to cope with and reduce the suffering that passwords cause, users often turn to the corporate banned SNUMP method of password control. SNUMP, better known as "Sticky Note Under the Mouse Pad," helps users maintain password lists without having to program master control spreadsheets or attend Memory seminars. While this may decrease a network user's suffering, it increases the suffering of those who are trying to safeguard the network. You've been trying to eliminate the SNUMP method for years without success. The harder you try to impose greater security on the network, the less secure it actually becomes. But now, with the latest release of Novell SecureLogin, you can be saved from password hell.

> Novell SecureLogin 6.0

Novell SecureLogin 6.0 provides enterprises with fast and easy access to corporate resources using a single, secure login. Users authenticate once to the network and from then on, SecureLogin streamlines and automates access to their applications and resources. SecureLogin 6.0 also allows you, as an administrator, to take control of credential management. SecureLogin becomes the password broker between all of the network applications and your end users. By creating secure password policies and associating them with users and the network applications, you can affect your organization in several positive ways. You can:

- increase the security of the network data and applications by enforcing strict password requirements and policies without having to place that burden on the shoulders of your users
- reduce the help desk costs with regard to password related issues
- improve user productivity by streamlining their access to network applications and by reducing the time wasted calling the help desk with password related issues
- facilitate compliance with new government regulations for identity, privacy, policy enforcement, and audit and authentication services.

> What's New in SecureLogin 6.0

Novell SecureLogin 6.0 incorporates significant enhancements. Some of the most important of these are a new user interface;

A user's path of least resistance is to choose the same password for the application that they use to log in to the system. In math, we refer to it as the "least common denominator," where the user has one common password which is easy to remember and is based on something simple or common to them. Isn't it ironic that the strict security policies put in place to safeguard the network, end up having the opposite affect?

improved management capabilities, including integration with iManager; added support for Mozilla Firefox; a new Web Wizard; significant out-of-the box application support; and the new ability to use advanced security methods, such as smart cards and biometric devices.

1 New User Interface

SecureLogin 6.0 has a redesigned user interface for easier navigation. The new interface includes a two panel display with a browse tree on the left and a display of the user's settings and options on the right. (SEE FIGURE 1.) Novell enriched the interface with graphics to help identify tools, settings and user information. Novell also implemented customer usability feedback to make it more intuitive when you create or modify new application definitions and linked login credentials.

2 Improved Management Capabilities

You can now integrate and manage SecureLogin 6.0 with iManager, the Novell Web management utility. As iManager continues to take over for ConsoleOne, this integration continues the progress to centralize all of the management utilities via the Web. Also, Group Policies are now supported in 6.0, which improve managing application access and credentials. Group Policies extend the existing capability of managing at the user and container level; hence, you have greater flexibility and control to implement your security policies. (SEE FIGURE 2.)

If you're using LDAP as your directory, or if you have multiple directories because of mergers or acquisitions, a new tool simplifies administering access rights in LDAP. Available in LDAP mode, this tool has a tree style utility that lets you browse to an LDAP object and assign rights to it. Previously, you had to know and enter the fully qualified object name, including the location context. That was prone to user error, but the new utility resolves that issue.

Figure 1 SecureLogin 6.0 has a new user interface that incorporates a tree view on the left for easier navigation and the settings and options on the right

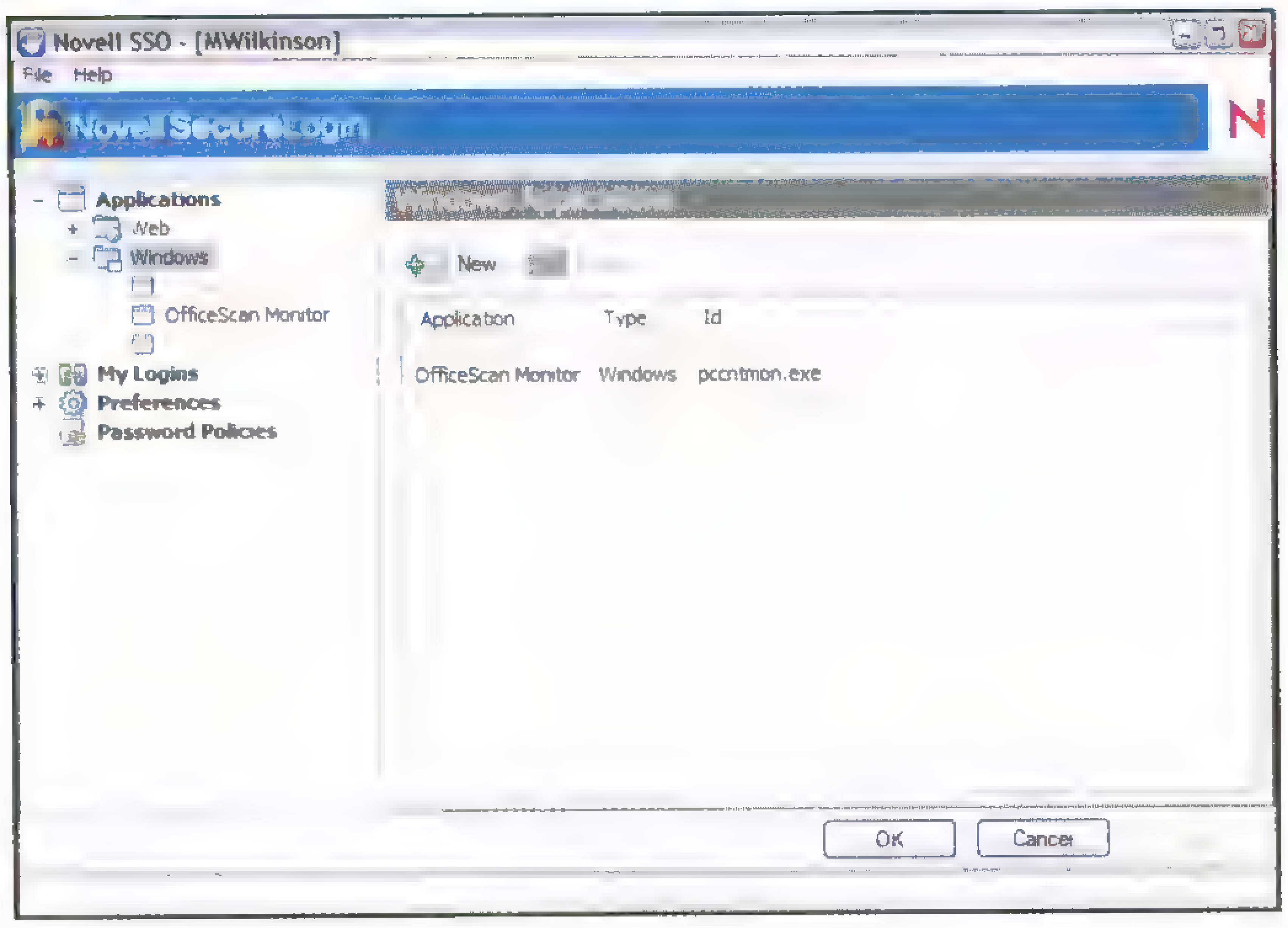
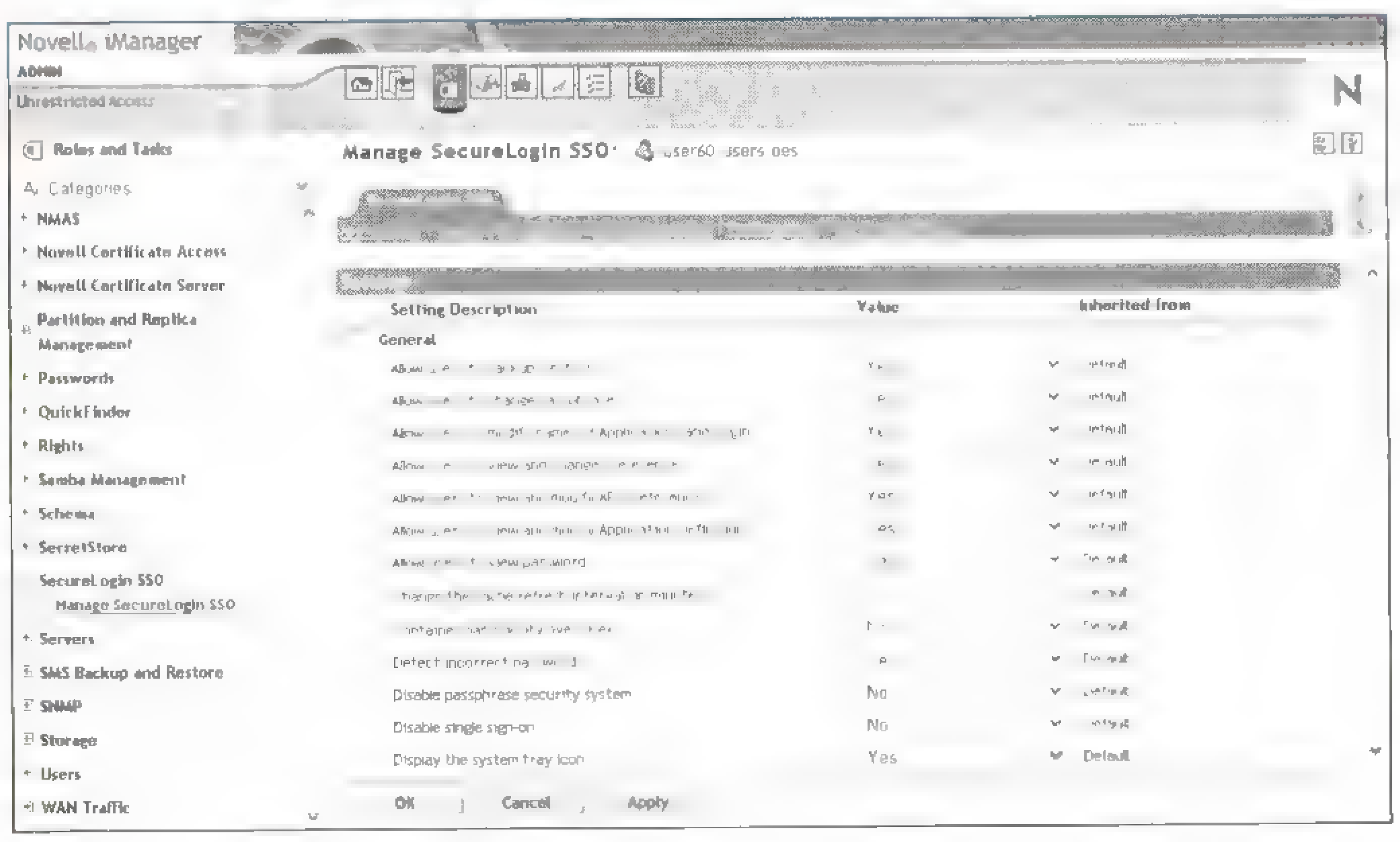


Figure 2 SecureLogin 6.0 is now integrated with iManager, the Novell Web administration tool. This enables you to administer SecureLogin from anywhere with a browser and an Internet connection



Some of the advanced features help shorten the time and simplify the process of getting into an application. Normally, you might have to log in to a remote system, launch and authenticate to an application, possibly answer some questions or respond to popups, and then navigate within the application to get to the desired area. SecureLogin can now automate the entire process based on the click of a single application icon.

3 Support for Mozilla Firefox

A significant addition, the Web Wizard now supports Mozilla Firefox. In the middle of 2005, Firefox reported that it had surpassed 50 million downloads. Touted as a more secure browser than Internet Explorer, many enterprises have adopted and standardized on Firefox. One benefit of the new Firefox support is that all scripts and application definitions you create for Firefox, also work on Internet Explorer, and vice versa. Few environments have a homogeneous browser installation; by adding Firefox support, you have a greater internal reach and a bigger impact when you implement your security policies across your organizations.

4 Updated Application Support

SecureLogin also now has an expanded application definition library. It provides out of the box support for several Windows applications; for example, SAP, SQL Server, Novell GroupWise; terminal based applications; and configurations for several popular Web sites such as Yahoo!Mail and Hotmail. (SEE FIGURE 3.)

SecureLogin also now supports Java based applications and extended add features that support the advanced requirements you have for complex Web applications. You can even configure it to look for applications that load prior to SecureLogin, such as iFolder, and pass credentials to the waiting applications for authentication.

5 Improved Web Wizard Functionality

The improved Web wizard functionality in version 6 makes the single sign on process on Web sites quicker and easier for everyone. The SecureLogin Web Wizard appears the first time a user visits a Web site that requires user credentials. The user is prompted to enter their credentials which are quickly captured for later use. This simple, one step process enables Web sites to provide users with seamless, hassle free access when they visit again. (SEE FIGURE 4.)

You can also use some of the advanced features to shorten the time and simplify the process of getting a user into an application to do their work. Normally, a user might have to log in to a remote system, launch

Figure 3 SecureLogin 6.0 has expanded its application definition library and provides immediate support for several Windows applications, terminal-based applications, and configurations for several popular Web sites. You can also easily add your own applications.

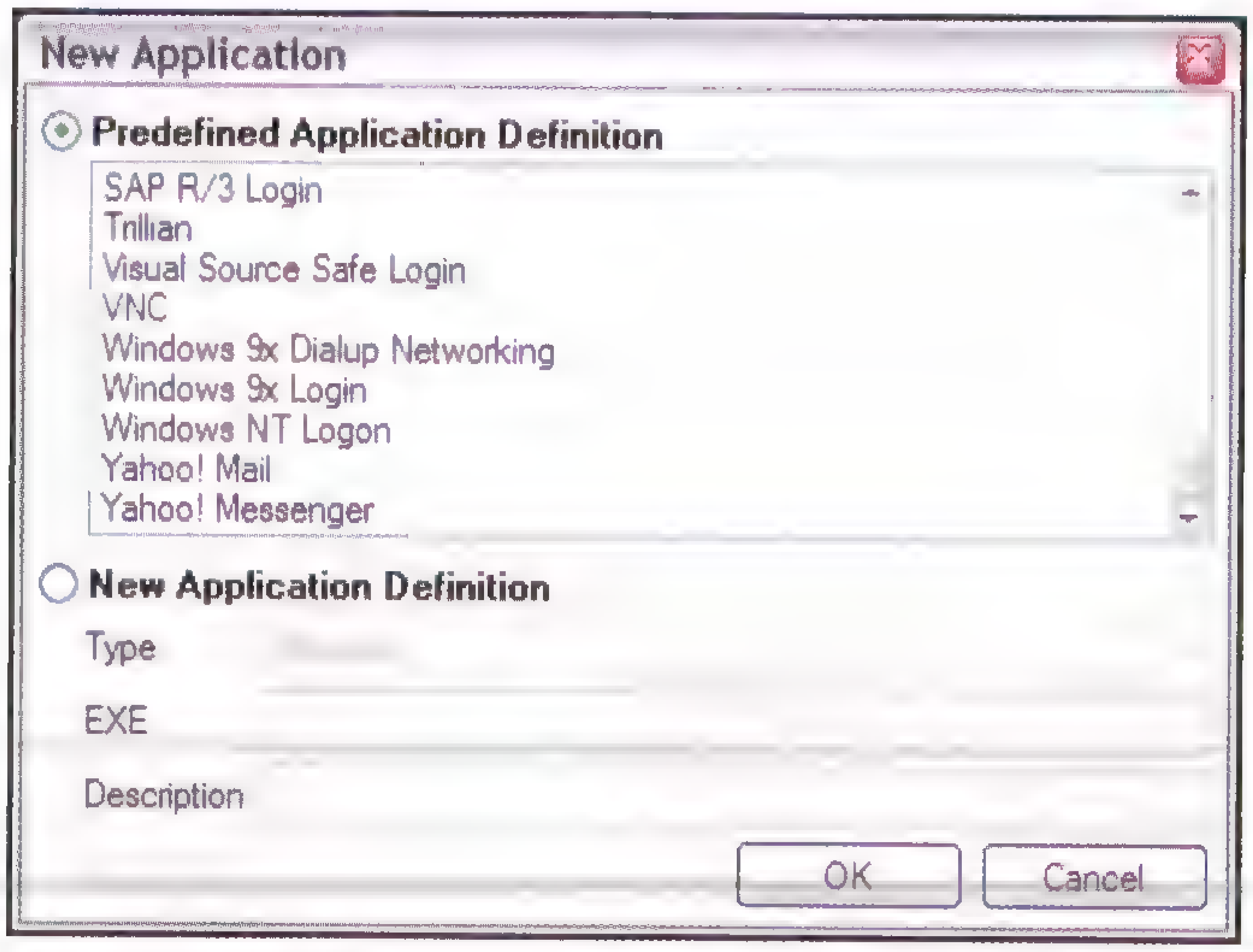


Figure 4 Through single sign-on, SecureLogin can automate the log-in process when users revisit sites that require credentials and log in passwords.

and authenticate to an application, possibly answer some questions or respond to pop ups, and then navigate within the application to get to their desired area. SecureLogin can now automate that entire process based on the click of a single application icon.

6 [illegible]

You can now configure SecureLogin, in con junction with Novell Modular Authentication Services, to add additional levels of security into your environment at the most impor tant places. These additional levels of security include support for smart cards, tokens and biometric devices.

A smart card is a small credit card sized authentication device that includes a pro grammable microchip that can store data and perform cryptographic functions.

Tokens are small hand held devices that generate one time passwords for authentica tion. Several token methods exist, but the most common is when a user provides their credentials and is given a random number challenge. That random number challenge is entered into the Token device, which will issue the appropriate response for authentication.

Biometric devices are scientific devices that analyze a human body characteristic and com pare it to a stored data version of the same characteristic. These characteristics can include fingerprints, eye retinas and facial characteris tics. You can integrate smart cards, tokens and biometric devices at strategic areas to enforce strong proof of identity before allowing access to sensitive or confidential applications or data. You can now take complete control and lock down access to your data because of the added support and integration of these advanced Novell Modular Authentication Services security devices to SecureLogin.

SecureLogin also tracks and captures net work authentication and access events, which can be reported and audited using Novell Audit.

> What's in a Version Number

If you're familiar with the previous release of SecureLogin, you might have recognized a significant change in the version number. While there have been significant improve ments and additions to the product, the answer to the version number is quite simple: Active Card, Protocom and Novell have col laborated and released different versions of SecureLogin in various forms. Active Card recently acquired Protocom and the com bined entity is now called Active Identity. Active Card had a previous release of their software which was version 5.5. Even though the last Novell release was version 3.51, the next logical release number to help synchro nize the products across partners was 6.0.

> Conclusion

Password and identity management are seri ous topics that require serious attention, especially in large organizations. Most organi zations today deal with these issues by treating the symptoms rather then implementing a cure; in reality, they're just chasing their own tails and increasing the size of the 10th ring of hell. SecureLogin 6.0 has everything you need to take back control of your networks while lowering your costs and increasing the securi ty of your systems as well as the productivity of your users. It also facilitates and simplifies conformance to government and corporate regulatory requirements. Now you can allevi ate your own pain and remove the need for anyone to use the SNUMP method of pass word management. Instead of letting that 10th ring get bigger, you can get rid of it — with SecureLogin 6.0. **N**

Certified Security

Novell SecureLogin 6.0 now includes new advanced-security libraries. These new libraries are Federal Information Processing Standard (FIPS) 140-2 compliant. FIPS 140-2 is a standard published by the National Institute of Standards and Technology (NIST) that outlines the U.S Federal government security requirements implemented in IT products to deal with Sensitive, but Unclassified (SBU) data use. FIPS 140-2 has also been adopted by the Canadian government's Communication Security Establishment (CSE). The previous release of SecureLogin included the OpenSSL libraries, but these libraries were not FIPS approved [illegible] FIPS 140-2 certification is required for companies who want to sell products that include cryptographic modules to the U.S. Federal Government. In addition, with the increased awareness and pressure to implement other regulatory requirements, such as those imposed because of Sarbanes-Oxley, the financial community has begun to specify FIPS 140-2 as a required checkbox for purchase consideration

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BrainShare 2006: MARCH 19–24

BrainShare 2006 Preview
A Fresh Twist on an Industry Favorite

By Todd Swensen

Anyone who has attended BrainShare will tell you that it's more than just another technology conference — that there has always been a "certain something" that sets BrainShare apart and makes it unique. So what is that secret ingredient? What motivates thousands of attendees to return to BrainShare year after year? And why does BrainShare engender such fierce loyalty and enthusiasm among so many people?

There are many good, concrete answers to these questions. BrainShare is, after all, widely recognized as one of the world's premiere technology conferences. During more than 20 years, it has built a reputation for dynamic and entertaining general sessions, quality technical breakout sessions, sophisticated hands-on technology labs and a vibrant partner presence. Of course, the brains behind BrainShare also understand that people come to technology conferences to build new relationships with colleagues and industry experts, so there are always plenty of great parties, concerts and other opportunities to mingle, meet people, discuss new business opportunities and have a great time in the process.

But like any memorable event, the "certain something" that makes BrainShare unique is more than the sum of these tangible parts, and its appeal somehow goes beyond its sessions, programs and parties. BrainShare has a distinct culture, a unique personality and a rich heritage — developed slowly over the years — that defines and enriches the experience for every attendee. It provides a distinctive environment for learning, sharing and networking that directly reflects the quality of the people who attend. And every year, thousands of attendees travel home from BrainShare with fond memories and new tools and ideas for improving their businesses.

> New Variations on a Proven Theme

Of course, BrainShare 2006 will incorporate all of the rich history and unique culture that have made the conference so successful. But this year, BrainShare is also rolling out some notable enhancements that will make it an even more enjoyable and productive experience.

First, in 2006 all of the regional BrainShare conferences will be condensed into one global "super conference" in Salt Lake City. This will make it possible to focus all of Novell's technical resources on one event, provide attendees with new opportunities to network with peers and experts from around the world and provide a more robust, in-depth conference experience. By attending a single global BrainShare conference, attendees will gain more personalized access to the best Novell engineers and industry experts, the freshest content and the widest possible range of information.

BrainShare 2006 also marks a fairly dramatic shift in the way technical breakout sessions are developed and presented. In the past, Novell's product teams have worked together to define and develop all of the content for breakout sessions. This year, for the first time ever, attendees have been directly involved in the process. Over the past few months, attendees have been able to log into the BrainShare Web site, review more than 300 proposed technical breakout sessions and vote on which sessions they would most like to see presented at the conference. The results of the voting were used to develop the final roster of breakout sessions. Voting ended on January 4th, but during the final few months of 2005, thousands of attendees voiced their opinions and played an invaluable role in determining which technical breakout sessions Novell will offer at BrainShare 2006.

Another important first this year will be the addition of Novell Advanced Technical Training sessions—all conducted by highly trained and certified Novell Training Services engineers. For the first time, attendees will be able to participate in more than 20 of these award-winning, hands-on Advanced Technical Training courses at BrainShare — at no additional charge.

Finally, the BrainShare 2006 organizers have gone to great lengths to place all of the technical information at the conference in the context of Novell's business strategy. This will make it easier to marry the technical details covered in the breakout sessions and technical labs with the important business drivers and high-level strategy presented in the general sessions. For example, all of this year's breakout sessions are built around the five Novell Market Solution areas: data center, security and identity, resource management, workgroup and the desktop. This approach will make it easier to make the critical connections between the technical capabilities Novell offers and the business requirements that make them relevant and necessary.

> A Technical Conference That Makes Good Business Sense

BrainShare has always been successful because attending has always been a smart business decision. This year, the list of convincing business reasons for attending BrainShare is longer than ever before. At BrainShare 2006, attendees will have even more opportunities to exchange ideas with other IT professionals and industry leaders, take advantage of hands-on, collaborative training opportunities and participate in "birds of a feather" discussions that bring people with similar industries or job responsibilities together to share experiences

What's New at BrainShare 2006?

- Regional BrainShare conferences have been condensed into a single, global event.
- Technical breakout sessions were chosen based on attendee voting.
- Advanced Technical Training sessions from Novell Training Services will create exciting new learning opportunities.
- More tightly focused sessions—all based on the five Novell Market Solutions areas—will place Novell technology in the context of business needs.

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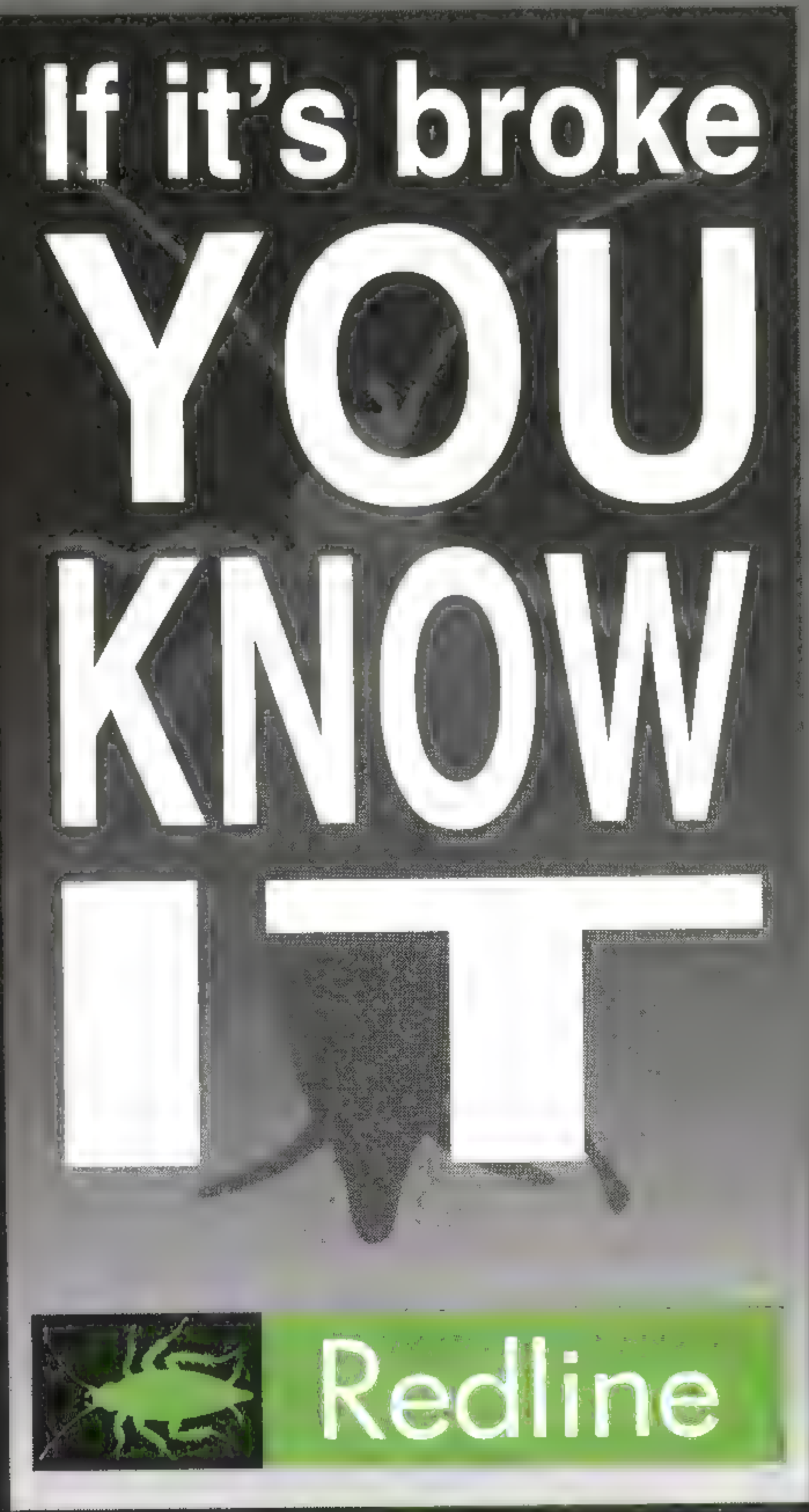

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and information. BrainShare also gives attendees important opportunities to sharpen their skills, with an impressive variety of hands-on training, in-depth technical workshops and certification courses.

These types of networking and training opportunities have always been an important part of the business case for attending BrainShare. But this year's conference is also structured to help attendees apply Novell technology to important business challenges. For example, attendees will learn how they can tap the many business advantages of Linux, gain freedom from proprietary solutions and vendor lock-in and move their businesses toward less expensive, more reliable and more flexible hardware platforms. They'll also have the opportunity to explore new ideas for securing their businesses, dealing with regulatory compliance issues and expanding secure access to customers and partners. And they'll be able to examine new ways to save money by consolidating networks and optimizing key systems. After spending a week at BrainShare, every attendee will be in a much better position to solve some of their toughest business problems, and that qualifies as a good business investment by anyone's standards.

> Working With the Best

Novell solutions certainly don't work in a vacuum, and BrainShare is the best place to see how hardware and software from other technology companies work with and complement Novell technology. This year, BrainShare will showcase joint solutions from Novell and some of the biggest, most recognized names in the industry, including AMD, Dell, HP, IBM, Intel, Oracle and many others. The Novell PartnerNet Showcase makes it easy to see Novell partner solutions in action, and the traditional Partner Night party gives attendees the opportunity to interact with partners in a fun, informal setting.

> Up Close and Personal

BrainShare certainly offers something for everyone—from high-powered general sessions to personalized hands-on training. In 2006, attendees will have access to a wider range of sessions, facilities and activities than ever before.

> General sessions

BrainShare general sessions have always provided the perfect blend of information and excitement with insightful keynote addresses, cutting-edge demos and entertaining video segments and competitions. These sessions, typically packed with more than 5,000 people, are the best place to learn what Novell has planned for the coming year, gain fresh insights into Novell's strategic direction and industry trends and get a first look at the very latest Novell technology.

> Breakout sessions

BrainShare 2006 will feature more than 220 technical breakout sessions, more than two-thirds of which will feature new content. This year's breakout sessions have been scheduled specifically to reduce the number of competing courses offered at the same time. The addition of more than 20 hands-on Advanced Technical Training courses will add new depth and dimension to the breakout session portfolio. And thanks to the new attendee voting process used to help determine topics and content, this year's breakout sessions will be more relevant and focused on the needs of the audience than ever before. Together, these enhancements translate into the best, most diverse and most complete technical content ever offered at BrainShare.

> PartnerNet Showcase

This year, dozens of industry-leading hardware and software companies will be featured in the BrainShare Partner Showcase. This convenient mini-tradeshow environment makes it easy to see partner solutions in action and speak with representatives from many different partner companies. BrainShare 2006 will also feature a Sponsor Night, an after-hours party and a wide selection of partner breakout sessions.

> Developer Den

BrainShare started out as a developer conference. At BrainShare 2006, the Developer Den honors that tradition by providing developers with an environment where they can network with their peers, share ideas and information and take advantage of developer-focused technical sessions, training courses and other resources. This year, the Developer Den will place a special emphasis on providing resources for the exploding ranks of Novell Linux developers.

> Training Depot

With steep 30 percent discounts on all training materials, the Training Depot bookstore offers some of the year's best prices on Novell Training Services manuals and other technical publications. The Training Depot also sponsors book signings, interviews with authors and industry experts, and other activities.

The Top Six Business Benefits of Attending BrainShare

1. Learn to create more freedom of choice using Linux.
2. Save money by learning new consolidation and optimization strategies.
3. Learn about important new Novell technologies and solutions.
4. Sharpen your skills with hands-on training and in-depth workshops.
5. Network with peers and form new business relationships.
6. Learn how to secure your enterprise.

Never a Dull Moment

With great after-hours events and activities scheduled every night of the conference, BrainShare 2006 attendees may get a bit tired, but they'll never be bored:

Sunday Welcome Reception

Monday Private and special invitation parties

Tuesday Sponsor Night

Wednesday Concert Party with the Counting Crows

Thursday Meet the Experts Night

> Testing Center

Once again, BrainShare has teamed up with Novell Training Services to offer onsite certification testing opportunities. This year, attendees can take the Practicum exam at BrainShare for only US$99, compared to the regular price of US$195. Of course, Novell Training Services representatives will be available all week to help attendees explore different training and certification options and discuss the benefits of Novell Technical Services training.

> Novell Hot Spot

The Novell Hot Spot provides a comfortable refuge in the middle of BrainShare where attendees can go to relax between sessions, shop for Novell merchandise, take advantage of free wireless Internet access and even play a quick game of pool.

> BrainShare After Hours

After all the sessions, workshops and meetings close down for the day, BrainShare shifts into party mode—with something fun to do every night. This starts with the opening Welcome Reception on Sunday evening and ends with Meet the Experts Night on the last night of the conference. For many attendees, Wednesday's Concert Party at the Delta Center is a major highlight. This year, the Counting Crows will put on a show that will keep people talking (and ears ringing) for days.

> Putting the Pieces Together

On March 19, all of the tangible and intangible pieces will come together to recapture the "certain something" that makes BrainShare unique. More than 6,000 attendees will discover, or rediscover, why BrainShare is one of the industry's premiere venues for learning, exploring and networking. They will remember exactly why attending BrainShare is such a smart business decision. They will experience one of the most fun and distinctive technology conferences in the world. And with all of the refinements and improvements, those who are returning will almost certainly mark the 2006 version of BrainShare as the best ever. N

Participate in the BrainShare 2006 Experience

BrainShare 2006
March 19-24
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novell.com/brainshare

Technical Breakout Session Highlights

Each Novell Market Solution area will feature dozens of technical breakout sessions. Here are some of the highlighted courses:

- Strategic Value of Linux in the Data Center
- Virtualization technologies in the Data Center
- Kernel Optimization / Tuning
- Linux Security
- High Availability Clustering Technologies

- Rapidly Design, Deploy and Document with Novell Identity Manager 3
- Tips, Tricks, Troubleshooting and Performance Tuning for Novell eDirectory
- Best Practices for Monitoring and Reporting with Novell Audit
- Installing and Configuring Novell Access Manager 3
- Configuring and Administering the User Application and Provisioning System in Novell Identity Manager 3

- Security and Vulnerability Management
- ZENworks Design and the Lifecycle Management Framework
- ZENworks in Mixed Operating Environments
- Provisioning Your Resources Using Novell Identity Manager and ZENworks
- Regulatory Compliance / ITIL with ZENworks

- Open Enterprise Server Futures and Roadmap
- Transitioning Admin Skills from NetWare to Linux
- Meeting Workgroup Needs with Hula and Maui
- GroupWise 7 Technical Overview and Futures
- How to Run Applications and Get More Out of Open Enterprise Server

- Thin Client Deployments with Novell Linux Desktop
- Evaluating OpenOffice.org 2.0 for Knowledge Worker Deployments
- SUSE Linux 10.1—What's Next for Enterprise Linux?
- Incorporating Usability Testing in Your In-House Development Process
- Linux/Windows Integration

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Extending the power of ZENworks

ZENworks and the ENGL Imaging Toolkit

By Steve Thompson and Heath Upton

Consider the different hardware and software configurations you have in your company. Can you count them all on one hand? If you count on both hands and both feet, would that be enough to cover your organization's varied OS environments? For most, it isn't near enough, but there are ways of taking the pain out of deploying and maintaining all those computers. Consider a Standard Operating Environment (SOE) as a first step.

Many organizations realize the benefits of deploying an SOE. They can reduce costs, improve service levels and productivity, and provide a secure and stable platform for business applications. But what is an SOE?

> Introducing ENGL Imaging Toolkit

The core component of an SOE is the operating system; it provides the basis upon which the other SOE components such as applications and organizational policies can be reliably built and deployed. The ENGL Imaging Toolkit provides a modular turn key solution for the deployment and maintenance of Windows 2000 and XP Professional workstations as part of an SOE project.

Novell ZENworks 7 provides a powerful imaging framework that supports the creation of base and add-on (layered) images. ENGL developed a methodology called Smart Windows Deployment that leverages ZENworks imaging capabilities to the fullest. The approach is to make the build process as modular as possible. This is important for a number of reasons:

- **Maintenance** You can update individual components rather than one big image.
- **Flexibility** The build can easily be tailored and extended.
- **Distribution** In multisite environments, only the components that change need to be replicated between sites.

The ENGL Imaging Toolkit consists of three components: Zim, Ztoolkit and Zwake. Each addresses a different element of the process of automatically deploying Windows across many different hardware types throughout your organization.

> Enhanced Imaging with ENGL Zim

ENGL Zim provides a front end interface to the ZENworks Imaging Linux environment on the workstation, and lets you configure how ZENworks imaging is presented to technicians and end users. Zim lets you deliver imaging tasks based on a user's eDirectory identity. It simplifies the end user experience. Zim can also automate manual

Figure 1 *The ENGL Ztoolkit build process is designed to automate the entire Windows build process without manual intervention*

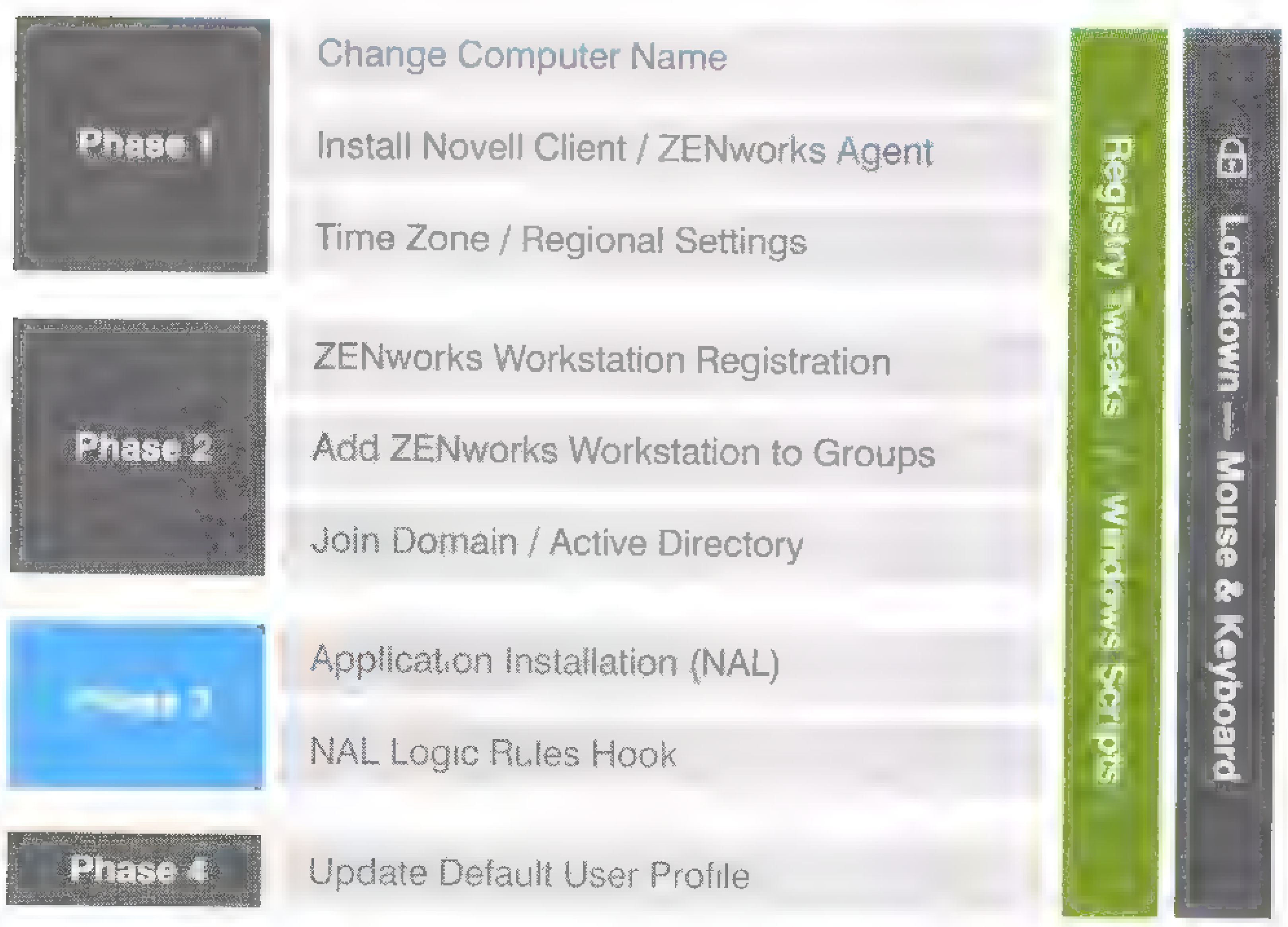
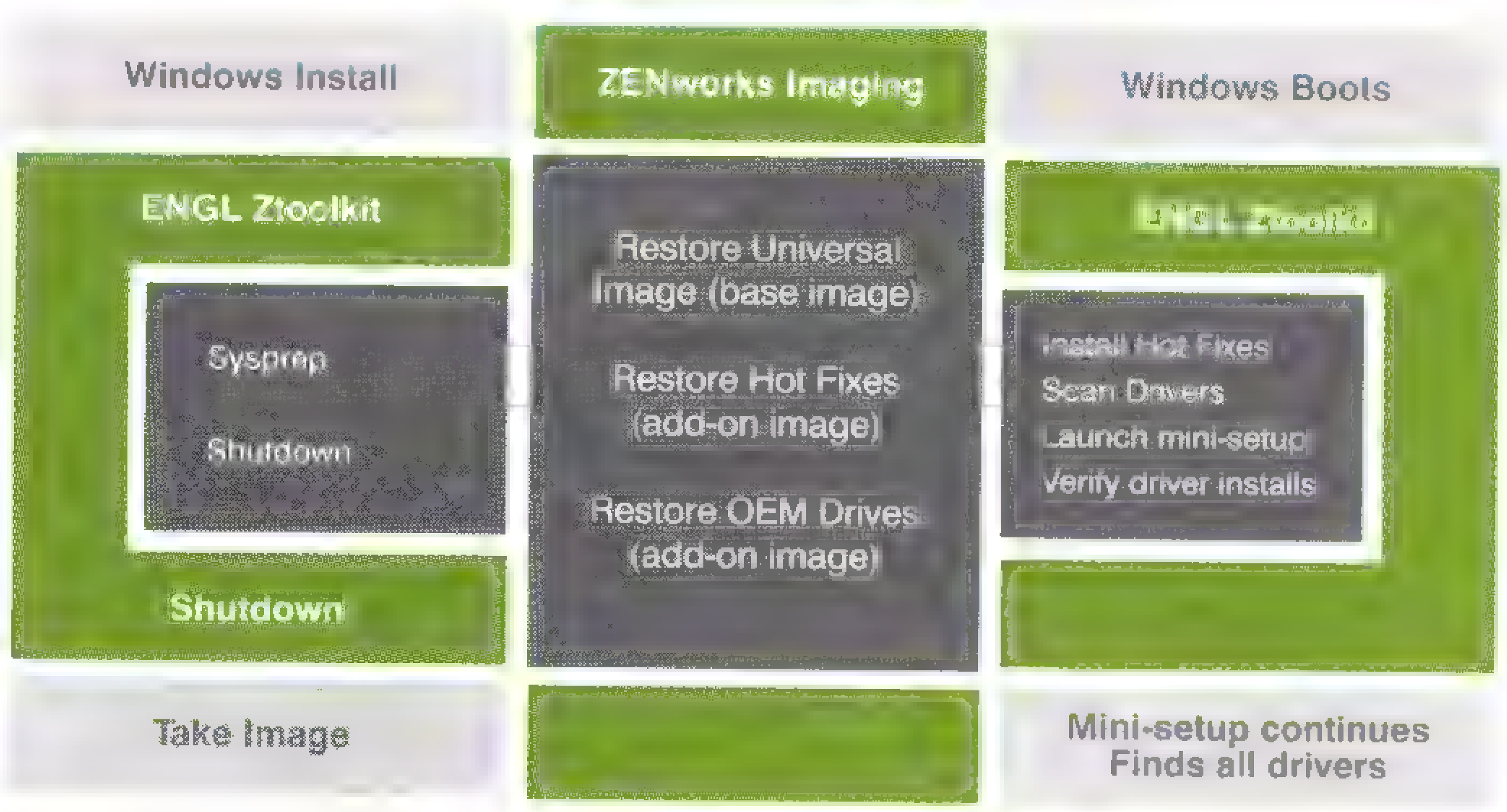


Figure 2 *The Ztoolkit Sysprep wrapper simplifies and enhances Microsoft Sysprep; it supports the installation of OEM drivers and hotfixes that have been delivered using ZENworks add on images.*



tasks, such as restoring ZENworks images and 'hiding' complex imaging tasks behind a single menu option.

Organizations increasingly have a requirement to minimize the time involved in deploying or redeploying workstations. The ability for anyone to be able to image or reimage a machine means that you can reduce the training and deployment costs by using a simple and intuitive front end to the imaging environment.

> Enhanced Windows Deployment with ENGL Ztoolkit

ENGL Ztoolkit enables complete automation of the Windows 2000 or XP build process from the point the machine first boots the OS to the machine being ready for the end user to log in and begin work. Ztoolkit takes care of the following without any manual intervention.

- computer naming
- ZENworks workstation registration
- Active Directory/Domain registration
- application delivery
- customization of the Windows environment.

Ztoolkit can perform many build tasks that traditionally require extensive scripting and batch files just by using a single configuration file. Combined with ZENworks 7 Desktop Management, you can deliver thousands of workstations that are all built to exactly the same standard.

> Enhanced Lights-out Deployment with ENGL Zwake

ENGL Zwake is a task-based, lights out scheduler, which extends ZENworks Wake on LAN (WoL) capabilities. It lets you schedule a sequence of imaging-related tasks to perform against target workstations. For example, you can select a group of workstation objects in eDirectory and specify a start time for tasks. Then Zwake can perform a series of tasks, such as setting the ZENworks "restore image on reboot" flag and then sending WoL packets to start the image deployment process on those machines.

Creating the Build Process

UNIVERSAL BASE IMAGE

The process of deploying Windows using the ENGL Imaging Toolkit starts with the creation of a universal base ZENworks image.

ENGL recommends that the Universal Image is kept as clean as possible so it consists of just the core OS and major service packs. Keeping the base image as lean as possible will require minimal maintenance when support for new machines is required and applications are added or removed. In normal circumstances, the base image will only be rebuilt when a major OS service pack is released. Because of the modular nature of the ENGL build process, all other SOE components can be delivered using ZENworks add on images or application packages.

USING ZTOOLKIT BUILD WIZARD

The Ztoolkit Build Wizard helps you create a Universal Image and guides you through the process of defining how Windows will be built and configured for your SOE. The wizard interface presents each element which helps first-time users through the process of Windows deployment.

The Ztoolkit Build Wizard helps you with several tasks:

- computer naming
- regional settings
- multilanguage pack installation
- Novell client installation
- ZENworks Management Agent installation
- ZENworks Workstation registration and group membership
- Active Directory membership and security
- ZENworks application delivery
- Windows customization.

The Ztoolkit build process has four phases and each ends with an automated reboot. (SEE FIGURE 1.) Each phase performs a series of tasks and can interact with eDirectory or Active Directory as required.

Figure 3 *Zdrivers uses device filters to let you extract OEM drivers while excluding drivers that are in the Windows base image*

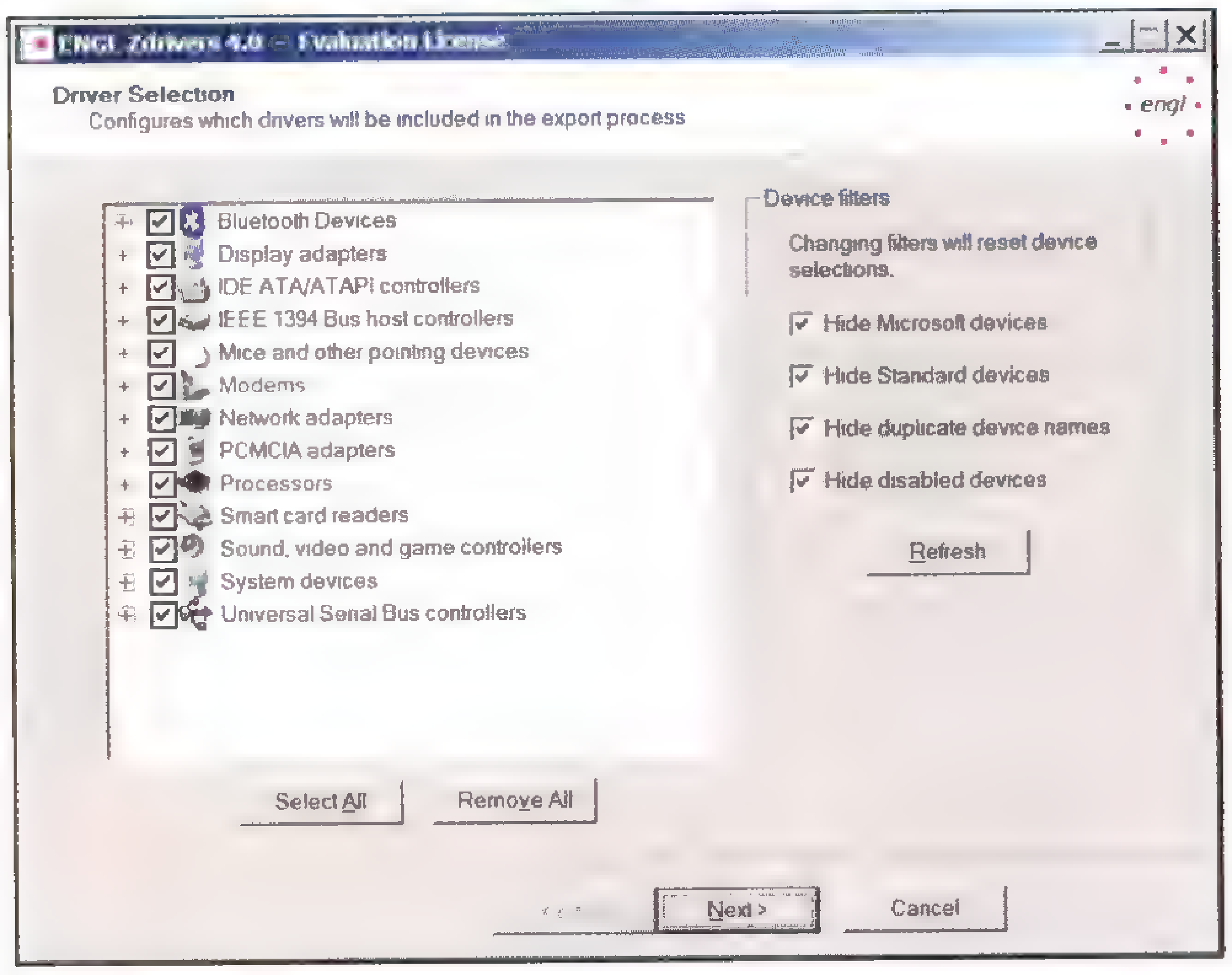
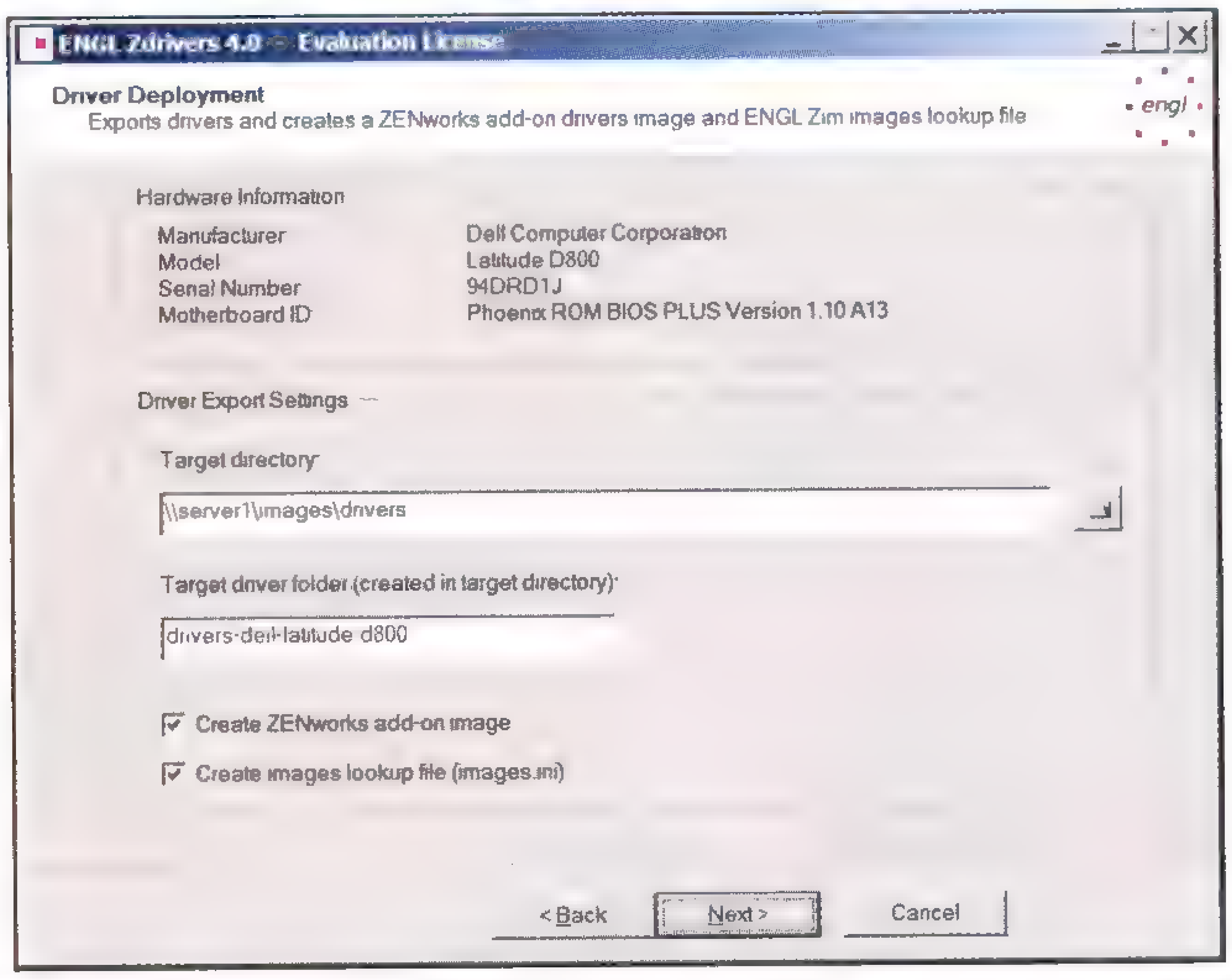


Figure 4 *Zdrivers creates a ZENworks add on image that contains the extracted drivers as well as a lookup file that ENGL Zim uses to automatically select and restore OEM driver images*



For security, you can disable the keyboard and mouse (including special Windows keys and even the Ctrl Alt Delete reboot keys) during the build process. You can tailor the build process to always deliver your exact requirements. If the machine is turned off during the build process, Ztoolkit will begin where it left off when it is restarted.

> Customizing the Build Process

The Ztoolkit build process allows you to tailor the Windows environment to a specific set of SOE requirements. You can call registry updates or scripts to make specific changes to the environment before and after each individual build phase. For example, it's common to disable balloon pop-up tips in Windows XP during the build process: create a phase1 before.reg file with the necessary registry keys and update the registry with that .reg file before Phase 1 begins.

You can also use the included Ztoolkit ActiveX control in build process scripts to perform tasks such as LDAP queries, ZENworks Image-safe Data (ZISD) queries and Windows customization. A common use for the ActiveX control is to retrieve information from ZISD that was stored at imaging time. For example, using ENGL Zim, you can store location information, such as multilanguage requirements, in ZISD that you can then retrieve and use during the Windows build process.

Once you define the build process, the Build Wizard creates all the required core components, including the Universal Image creation process and ZENworks add-on images. After creating the base image and build components, you need to address the other elements of the automated build.

> Handling OEM Drivers

Windows drivers often cause organizations to maintain many different images to cater to their different hardware platforms. Remember, the Universal Image only contains the base Windows OS; it does not contain drivers for the many OEM hardware components that exist across the desktop, laptop and tablet machines where the image will be deployed. Many organizations use Microsoft Sysprep (System Preparation Tool) in an attempt to separate an image from the underlying hardware; however, Sysprep has some driver discovery limitations and it does not create a truly portable Universal Image.

To address these limitations, ENGL Ztoolkit includes a Sysprep wrapper that provides more functionality around Sysprep. It includes dynamic discovery and validation of drivers during the imaging process as well as hotfix installation. (SEE FIGURE 2.)

> Creating OEM Driver Add-on Images

Suppose your organization delivers a new hardware platform into your IT environment. Typically, you'd try to make an existing image 'fit' on the new hardware, or else build a new image for that hardware platform. Ztoolkit ships with a driver extraction tool that lets you extract OEM drivers from a Windows machine.

In this scenario, you can take a new hardware platform and let it boot and perform the manufacturer's OEM Windows installation. Then run the Ztoolkit driver extraction tool, Zdrivers, from a USB key or network path. Using the Zdrivers wizard, select the drivers and then export them to a directory. It will create a ZENworks add-on image that contains all of the drivers for the specific hardware platform. (SEE FIGURES 3 AND 4.) It will name the image using a standardized naming convention of 'drivers <vendor> <model>.zmg'.

> Hotfixes

Patch management is a critical element in maintaining the stability and security of an SOE. Using the ENGL Imaging Toolkit, you can build machines with the most current Microsoft hotfixes and apply them during the build process. This approach has two key advantages over delivering hotfixes after the machine has finished building:

- Hotfixes are applied before hardware discovery or, before the network card is installed. (SEE FIGURE 2.)

Figure 5

Figure 6

- The workstation is secure, stable and useable at the end of the build process without applying more patches.

In addition, you don't need to modify or re-create the Universal Image when new hotfixes are released. You can integrate hotfixes into the automated build process by adding the relevant hotfix executable to a ZENworks add on image.

Once you deploy the machine, ZENworks Patch Management can maintain the patch status of the machine until the next time you image or replace it.

> Multilanguage Support

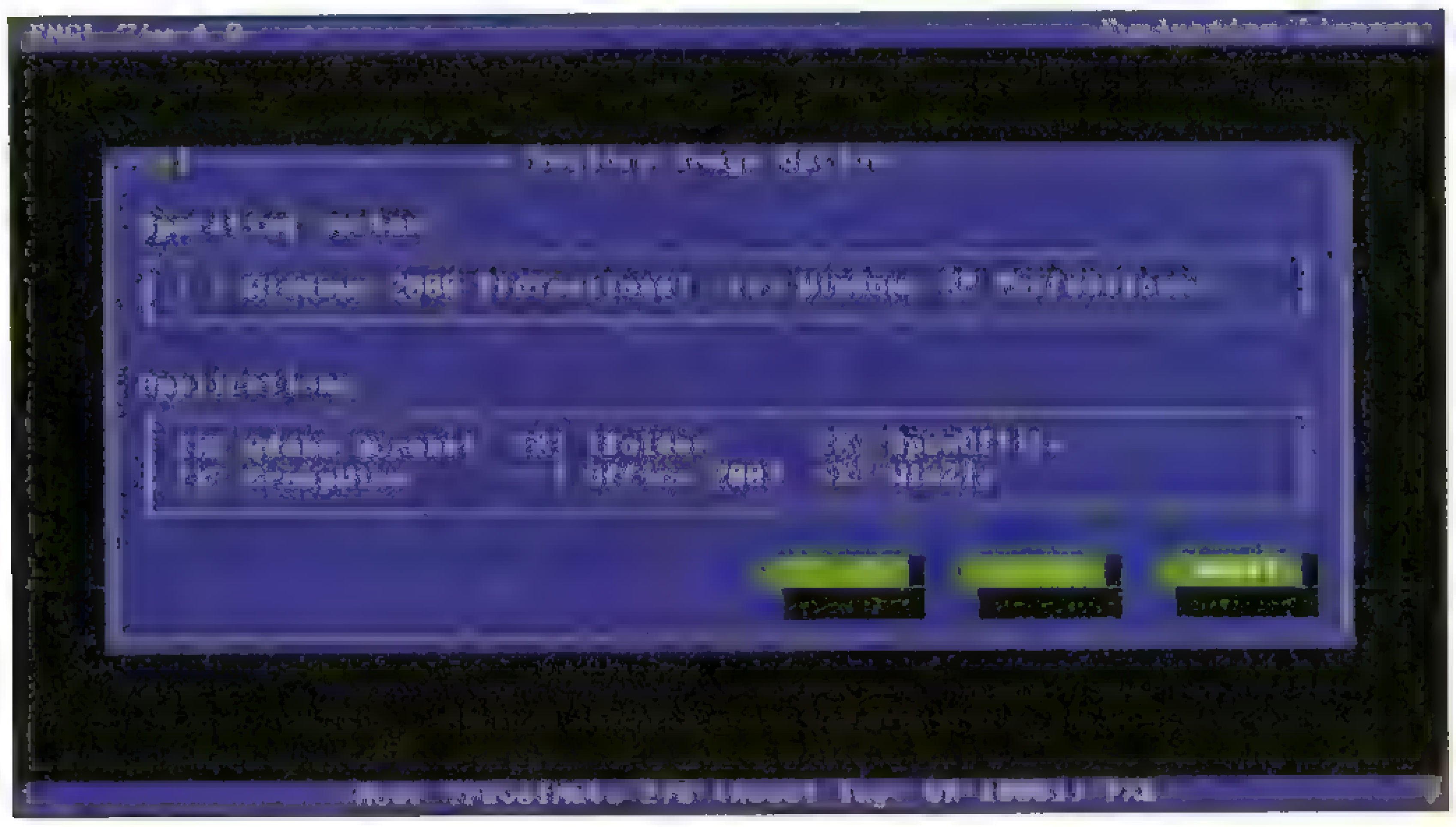
If your organization is using Windows 2000 or XP, you can localize the user interface using Multilingual User Interface (MUI) packs. MUI lets you change the user interface language of the OS according to the preferences of your individual users. Because the ENGL Imaging Toolkit is modular, you can easily integrate and deliver MUI packs into the build process on a location-specific basis.

The Ztoolkit Build Wizard can automatically create the MUI add-on images. Use a standard naming convention, such as mui-<language>.zmg to name your image. A ZENworks application object installs the MUI pack during phase 3 of the build process. (SEE FIGURE 1.) You can apply multiple MUI packs if the relevant MUI pack image has been restored. You can do this only if the application also has a system dependency on a specific MUI language directory.

> Deployment

We've discussed how to create a few different modules used in the build process. Figure 5 shows the build components and the order (bottom to top) in which they will be restored. The deployment process will restore the first four image components (the Universal Image base image, hotfixes, Novell Components [Novell Client and ZENworks Management Agent] and ENGL Ztoolkit Build Process add-on images) to every machine.

Figure 7 *The form [illegible] group information onto d[illegible]*



The last two add on images will be restored on a per-machine basis using environmental information and lookup tables to determine delivery.

> Image Deployment

After creating the components of the automated build process, you can deliver the relevant images to target workstations in several ways:

- manually, from the machine using PXE, CDROM/DVD or USB key
- automatically, using ZENworks imaging policies
- lights-out using Wake-on LAN

Zim operates in all of these environments and delivers the relevant images to the workstation with or without user intervention. You can automate the entire imaging process using a BASIC-like script language.

For manual imaging, Zim secures ZENworks imaging using an LDAP login panel. After authentication, Zim displays an imaging menu based on the user's identity. (SEE FIGURE 6.)

If you have workstations that ZENworks is not managing or if you have new hardware, you might need to "touch" those workstations to set the initial configuration. Using Zim, set all of the needed configurations before imaging. Then use them during the build process as discussed before. This greatly reduces the "touch time" because you can provide all the needed information and then leave the machine to build.

ENGL Zim forms are one method of gathering build information using an easy and intuitive interface. (SEE FIGURE 7.) Once you enter the information, Zim processes the information and performs the appropriate imaging tasks.

Launched manually or automatically, Zim can natively retrieve information from ZISD, eDirectory (via secure LDAP), the machine's BIOS or lookup files. Using this information, the correct images are selected and restored to any given machine.

For example, Zim will restore the OEM driver image that is based on the specific model information from the BIOS of the workstation. In Figure 4, Zdrivers created a driver add on image for a DELL Latitude D800. Zim retrieves this information and based upon it, Zim looks up the relevant add-on images to restore.

> Conclusion

Now you know how to develop and deploy a Standard Operating Environment using Novell ZENworks 7 and the ENGL Imaging Toolkit. Because your organization keeps changing, so will your IT requirements. As long as companies develop new software and hardware, your deployments, updates and modifications will never end. Deal with it. ENGL gives you an easy way to stay on top of those changes and continue to adapt to them while delivering a secure and robust SOE. So put your shoes back on and stop counting the various configurations in your organization. Just make the images and let ZENworks and ENGL do the rest. N

At A Glance

The Three ENGL Components

ENGL Zim is a front-end interface to the ZENworks Imaging Linux environment on the workstation. It lets you configure how ZENworks imaging is presented to technicians and end users.

ENGL Ztoolkit lets you automate the entire build process of Windows 2000 or XP from the point the machine first boots the OS to the machine being ready for the end user to log in and begin work.

ENGL Zwake is a task-based, lights-out scheduler, which extends ZENworks Wake-on-LAN (WoL) capabilities. It lets you schedule a sequence of imaging-related tasks to perform against target workstations.

Could there be a better tool?

GroupWise 7 Monitor

By Danita Zanrè

The Monitor for Novell GroupWise 7 has some cool new features. Let's take a look at a few tips so you can get the most out of the improvements. For the tips in this article, I'll assume you have installed and configured a working copy of Monitor. These tips will help you with some of the features that are new to Monitor for GroupWise 7. (For more information on how to set up and configure Monitor, see *novell.com/brainshare europe 05/presentations/tut239.pdf*.)

> New Feature Tip 1: Gateway Accounting Log Report

Gateways such as the GWIA and Async Gateway can send you accounting logs each night to provide information on what mail is passing through them. This information is in an ASCII delimited text file that can be manipulated with various third party tools. Starting with GroupWise 7, you can now get reports on your gateway accounting logs directly from Monitor; however, to do so requires some configuration. To make sure your Monitor will receive the account log reports, take the following steps.

First, make sure your Monitor has an MTP port set for "listening" to other MTAs. If you have enabled Performance Testing for your GroupWise Monitor, you're already done with Step 1. These steps comprise the same procedure that enables the MTP link for Performance Testing for all versions of GroupWise Monitor. If you have already completed this task, jump to Step 2.

1 Take the following steps to set up Monitor to listen on an MTP port:

A In ConsoleOne, create an External GroupWise domain for the Monitor Agent. In our example, it will be "ExternalMonitor." Set this domain version as "7," and link through a convenient domain. (SEE FIGURE 1.)

B Choose an MTP port for your Monitor Agent. It is best to NOT make this port 7100, as you might later choose to put an MTA on the same server, and forget that Monitor has taken that port. I've chosen port 7103 for our Monitor agent.

C In the Link Configuration for the domain designated in Step 1 for the "link through" domain, change the Monitor Agent domain's link to TCPIP and enter the IP address and port (in our case 7103) for the Monitor Agent.

D Go to the Monitor Agent Console. In this example, we'll use the Web Console because it is valid for both the Windows and Linux Agents, and with GroupWise 7, it has become the preferred point of access for Monitor administration. To get to

Figure 1 *GroupWise Monitor Performance Testing and Gateway Accounting require an External Domain for communication with your GroupWise System*

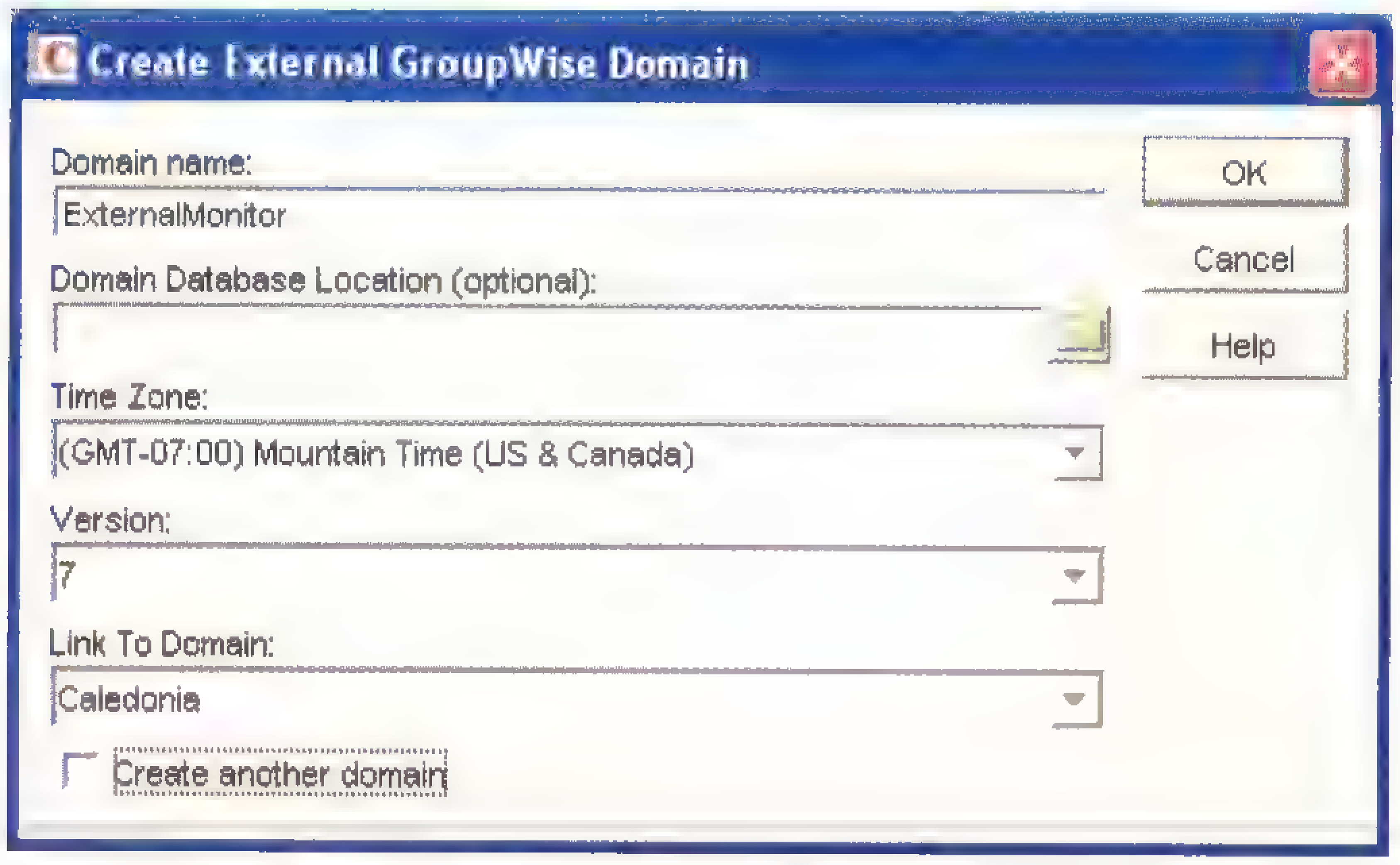
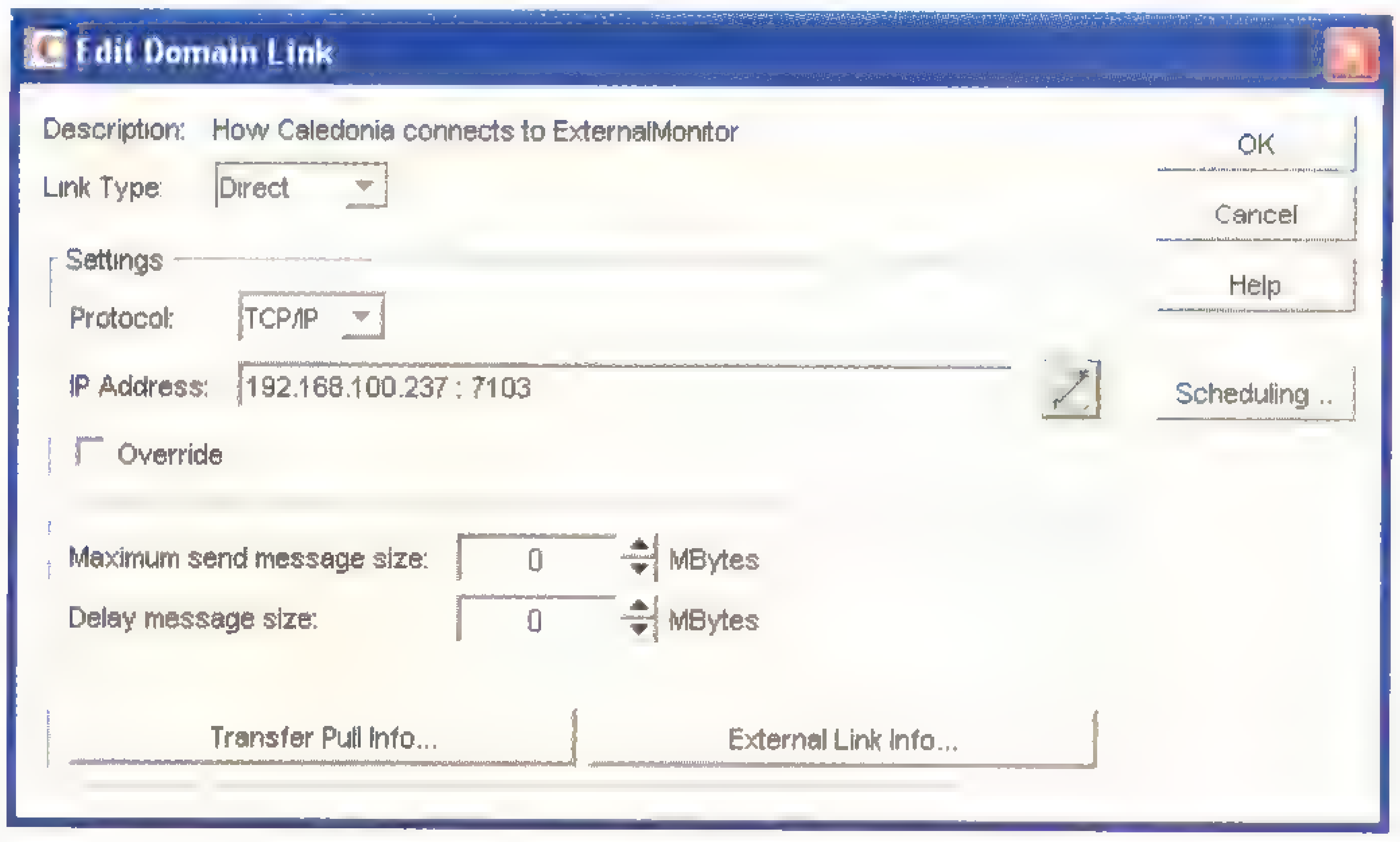


Figure 2 *The GroupWise Monitor External Domain is linked to another domain in your system via a direct TCP/IP link*



The new Trends reporting feature helps you build various graphs showing trends for your agents.

You can now also have a map of your system outlining where your agents are and their states so you have an up-to-date status of your system in a visual format that you can display on a large monitor in your IT center.

the Monitor Agent Web Console, go to http://yourmonitoragent:8200. For example, enter the following URL in your Web browser address field: http://192.168.100.237:8200.

E Click on Preferences, and scroll down to the MTP settings. Enter your IP port here, which is 7103 in our example. (SEE FIGURE 2.)

F Restart your Monitor Agent to make certain the settings become effective. The MTA for your "link through" agent should show the ExternalMonitor domain as Open.

2 Create a post office and user for your Monitor Agent so the accounting logs can be delivered:

A With your new ExternalMonitor domain selected in ConsoleOne, right click and choose New | External Post Office. Let's name our post office ExternalPO.

B Now right click on the ExternalPO object and choose New External User. Let's name our External User "GWMONUser."

3 Once you have completed these steps, configure your accounting logs to be forwarded to the GWMONUser. At present, you can't select an external user as a gateway accountant. Thus, you must have your current gateway accounting user forward the accounting logs to the Monitor user.

A Verify that you have a Gateway Administrator who is an Accountant. In ConsoleOne, select each gateway for which you want to have accounting logs. Edit the properties of the gateway, and under Groupwise | Gateway Administrators tab, verify you have a user listed as an Accountant, or add a user if you do not.

B In the mailbox for the user who is your gateway accountant, create a rule to forward all gateway accounting logs to the GWMONUser. (SEE FIGURE 3.) Note that this rule sends all messages with the subject of "Accounting Data File" to the Monitor Agent. GWIA logs are sent with a subject of "Agent Accounting Data File." Other older agents, such as the Async Gateway, might have "Gateway Accounting Data File" as the

Figure 3 Agent Accounting Logs are forwarded to the GroupWise Monitor user via a rule in the GroupWise client

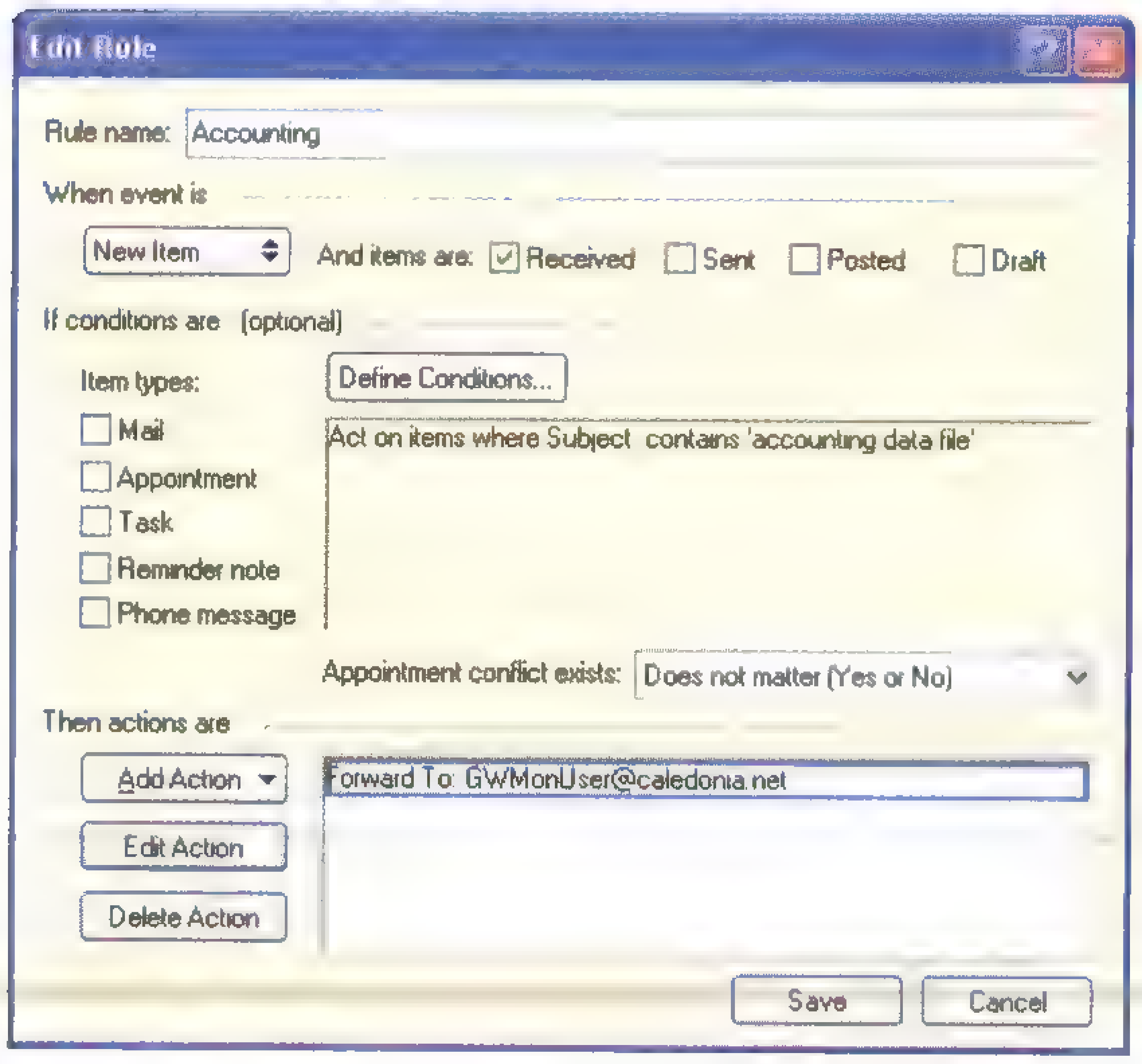
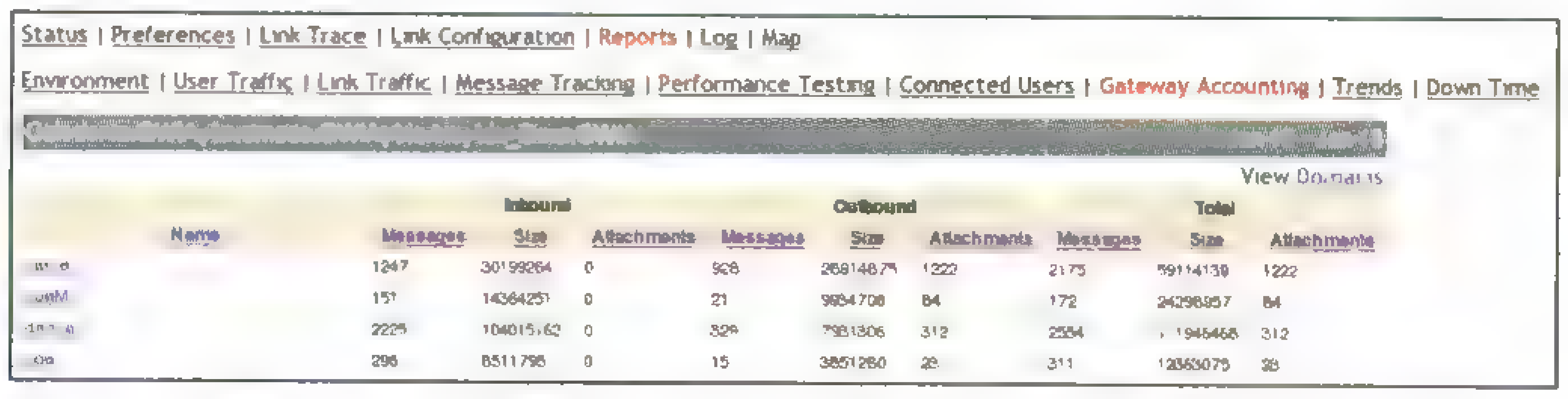


Figure 4 One of the many monitor reports is the Gateway Accounting User Log Stats report



The reports provide a lot of useful information, for example, log stats per user, log stats per domain and individual user stats.

subject line for the e-mail. This particular rule will trigger either type of accounting log file you receive.

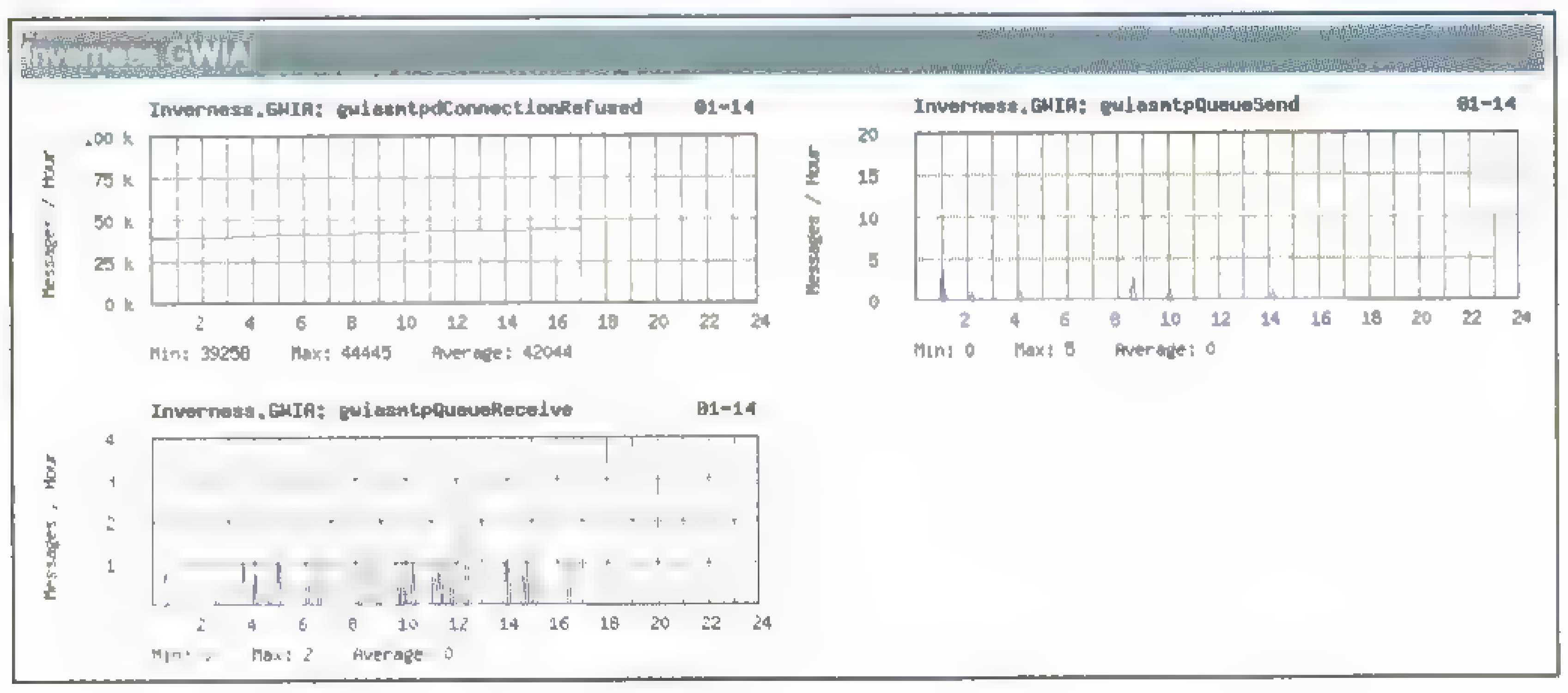
c Now, each night when the gateway sends the accounting log to the accountant, the accountant will forward that log on to GroupWise Monitor.

To view the accounting logs from the Monitor Web Console (See Step 1.d), choose Reports and click on Gateway Accounting. From there, you can choose which agents for which you want to see the logs.

The reports provide a lot of useful information. For example:

- *Log Stats per User* shows a list of users and the number of messages and total size of messages passing through the gateway. (SEE FIGURE 4.)
- *Log Stats per Domain* shows what domains you are receiving from and sending to.
- *Individual User Stats* shows the individual pieces of e-mail that are passing through the gateway for a particular user.

Figure 5 *You can build many custom trend reports in GroupWise Monitor to gather statistics on your system*



> New Feature Tip 2: Trends Reporting

The new Trends reporting feature, found in the Monitor Web Console Reports, allows you to build various graphs showing trends for your agents. We will show one example for a GWIA report.

1 Click on Reports | Trends from the Monitor Web Console.
2 At the Trends page, click on GWIA and enter a report name in the Trend Name field, and check the following items:
  A gwiasmtpdConnectionRefused
  B gwiasmtpQueueSend
  C gwiasmtpQueueReceive
3 Click Add Trend at the bottom. You can now view this trend by clicking the Trend name at the top of this window. Figure 5 shows the resultant graphs for this particular trend.

Note:
You can build a trend report for any of the MIB values that Monitor tracks; your resultant graphs will seem almost endless!

> New Feature Tip 3: System Map

Another new feature of GroupWise 7 Monitor is the ability to have a map of your system outlining where your agents are, and the state of agents in the map. This allows you to have an up-to-date status of your system in a visual format that you might have on a large monitor in your IT center. You can use any type of map in .png or .jpg format. To create your map settings, take the following steps:

1 Find or create maps of your office, campus, region or country, and copy them into the maps subdirectory of the monwork directory. This will be in one of two folders:
  A /tmp/gwmon/monwork for Linux
  B c:\gwmon\monwork for Windows.
2 In the Monitor Agent Web Console, click Map | New. *(Note: This is not available in the Windows Console; you must do this from the Monitor Agent Web Console.)*
3 Click the map you want to set up. Then specify a name for the map, and click Create.
4 Select an agent you want to include on this map in the drop-down list. Then click the place on the map where that agent is located. The agent name appears in a blue box.
5 Select additional agents and locations as needed by following the preceding steps.
6 In the Line Color drop-down list, select a color to show down links between locations. Make sure you select a color that shows up well on the particular map. This will determine the color of line that will appear on the map when the link between these agents is down.
7 Once your map includes all the needed GroupWise agents in their respective locations, click Done.

Once you have created your map, you can view it as follows:

1 In the Monitor Agent Web console, click Map | View.
2 Click a map to view agent status.
3 At this point, the Monitor Agent checks the status of each agent on the map. Any agent that is down or that has a status of Major or Critical, displays in red on the map. Agents with statuses of Warning or lower do not display on the map. If a link between agents is down, a line displays between them. N

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In a recent CIO Insight survey, a resounding 81 percent of respondents say they have deployed or are considering deploying an open source system or application. In addition, 72 percent report plans to expand their use of open source within the next 12 months. Cost reduction is the top reason for moving to open systems, but organizations still have many questions about implementing open source products for their business critical applications:

- How do I get technical support?
- Are open source products stable and mature?
- What version of the product should I use?
- Have security vulnerabilities been addressed?

> MySQL Network: Save Time and Effort

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> 24x7 Production Support Available from Novell and MySQL

MySQL Network includes 24x7 technical support services that ensure your production database applications are always available. MySQL Network gives you the flexibility to choose the service level that matches your requirements through Silver, Gold and Platinum offerings. MySQL Network Platinum provides enterprise organizations:

- 24x7 telephone and Web access to the Novell and MySQL support teams
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- an unlimited number of support incidents
- consultative support including performance tuning
- proactive account management

By offering direct access to the MySQL support team, you can be assured that MySQL experts are available when you need them. The MySQL support team is composed of database experts who understand the issues and challenges you face because they've overcome the same challenges themselves. MySQL will find a fix to your problems fast.

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The MySQL Pro Certified Server enables you to deliver high-performance and scalable business systems. It virtually eliminates the

Figure 1 The Update Advisor helps you stay up to date with MySQL releases. Based on your profile, you get alerts when there's an update relevant to what you are using.

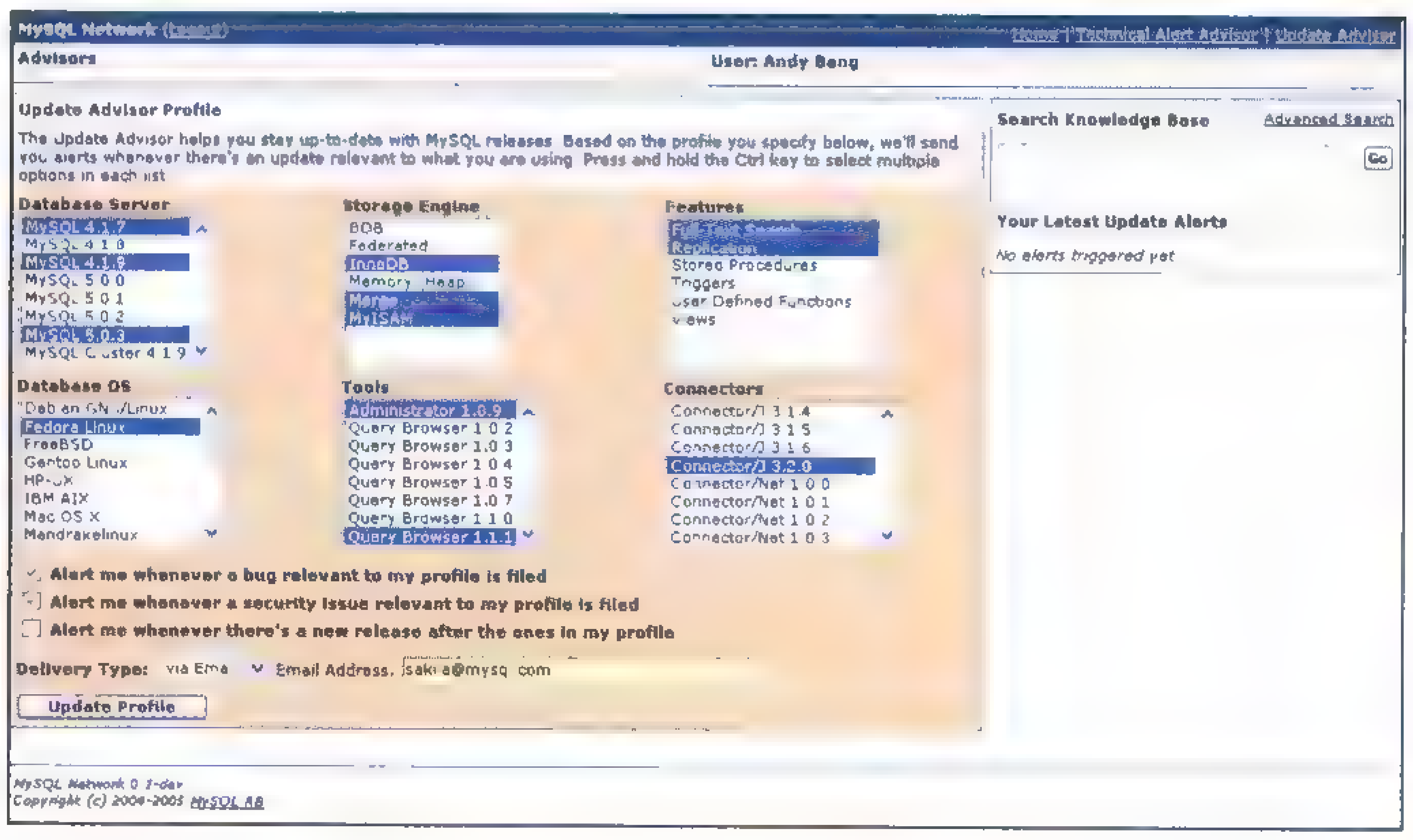
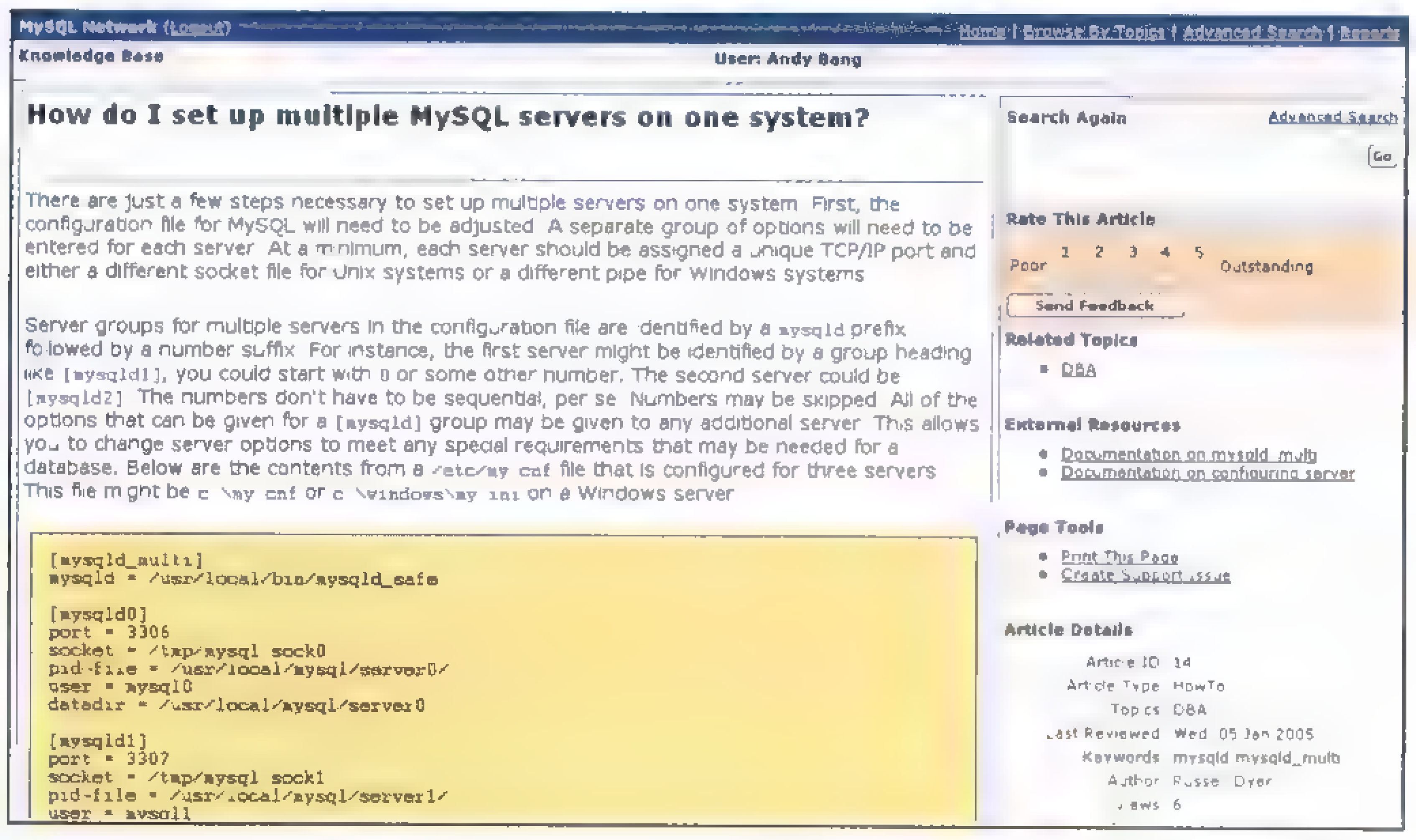


Figure 2 The MySQL KnowledgeBase provides a comprehensive library of hundreds of technical articles resolving difficult problems on popular database topics. A centralized repository, it eliminates time-consuming browsing and reading often unrelated information in mailing lists and newsgroups.



To learn more about how you can benefit from MySQL Network, go to *novell.com/mysql.*

MySQL

uncertainty of which version of MySQL to deploy, and it reduces the time consuming testing process required to verify the most appropriate version. The MySQL Pro Certified Server has gone through rigorous testing using commercial and open source testing tools. MySQL certified software focuses on stability, reliability and security to meet the business needs of enterprise customers.

It is:
- ready for enterprise deployment
- proven to be stable, reliable and mature
- tested using extensive test suites for Regression, Benchmark and Boundary conditions, including third party test suites from Coverity and Klocwork
- tested for known security vulnerabilities
- distributed using Native Package Managers on more than 10 platforms.

> Update Advisor

The MySQL Update Advisor keeps you informed of MySQL product updates to help you quickly determine which version to use. (SEE FIGURE 1.) As a MySQL Network customer you will automatically receive all MySQL maintenance, updates and major upgrades, so you can always run the most current version of MySQL. In addition, the Update Advisor notifies you of issues and security alerts before they impact your system. It is also customizable so you receive alerts based on platform, software used and more.

> Technical Alert Advisor

The MySQL Technical Alert Advisor keeps you informed of security alerts or other issues that can impact your MySQL production servers. The Technical Alert Advisor helps you easily maintain a secure and reliable MySQL infrastructure. Alerts can be sent to you via e-mail, pager or SMS messages.

> Comprehensive KnowledgeBase Provides Fast Answers

The MySQL KnowledgeBase provides a comprehensive library of hundreds of technical articles resolving difficult problems on popular database topics such as performance, replication and migration. (SEE FIGURE 2.) The KnowledgeBase is a centralized repository that eliminates time-consuming browsing and reading of often-unrelated information in mailing lists and newsgroups. It provides you:
- fast, accurate answers when you need them most
- a fully categorized, indexed and searchable repository of technical articles
- hundreds of articles including information on MyISAM, JDBC, InnoDB, ODBC, Performance, Security, Replication, Migration and more
- information on the latest features of MySQL 5.0, such as using stored procedures, triggers and views
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Pentaho

The Open Source Business Intelligence Solution

Business Intelligence (BI) has been one of the hottest segments in enterprise software during the last five years. Estimated at more than US$11 billion by IDC, the BI market continues to grow and evolve from a "nice-to-have" technology to a mission-critical requirement in any competitive business environment. This market has grown based on a proven track record of customer value and ROI. Today, most organizations view BI as a low-risk investment that offers more value from existing information and systems already in place. The recent attention paid by large software companies such as Oracle, Microsoft and SAP validate the significant future opportunity of the BI market.

While BI is a mature market, it continues to evolve rapidly. Established BI vendors face numerous challenges in retaining market share over time. BI has become an expensive and complex technology, and in many cases, developed in a way that counters to prevailing IT trends. Organizations are looking for flexibility, open standards, better value for their IT dollar, and modular and service-oriented architectures. Traditional BI vendors are delivering complex, monolithic suites that are expensive to acquire, integrate and deploy. BI is a market ripe for a disruptive technology and business model driven change.

> The Pentaho Business Intelligence Project

The Pentaho Business Intelligence Project is an ongoing effort by the open source community to provide organizations with best-in class solutions for their enterprise BI needs. On December 20, 2005, Pentaho delivered its first open source release for general availability, delivering capabilities for reporting, analysis, dashboards and a BI platform. This is a positive disruptive event for the BI industry, representing the first comprehensive BI suite available via a commercial open source model.

> Where does Pentaho Fit In?

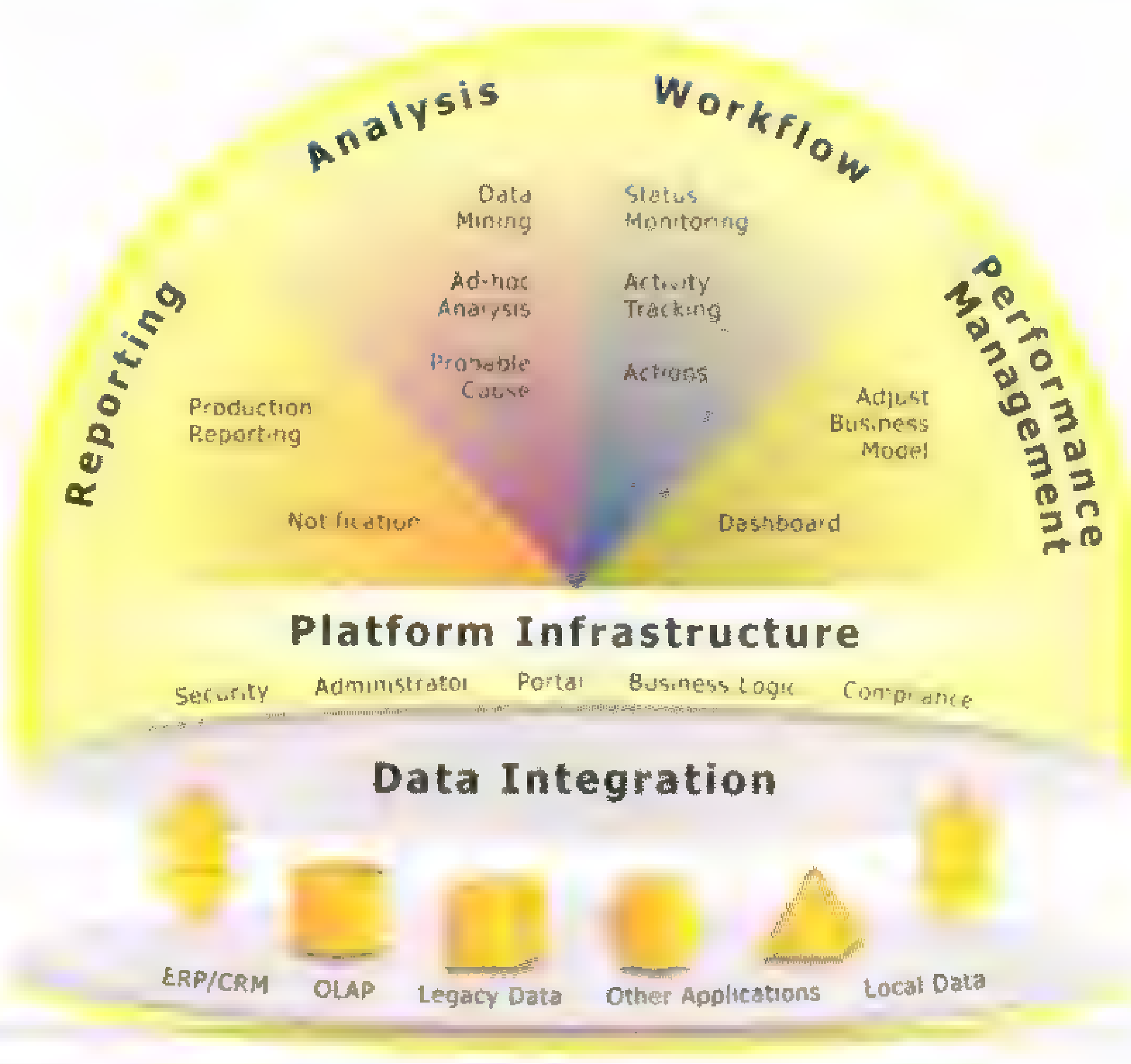
Pentaho Corporation is the professional open source company that centrally facilitates and manages this process. Pentaho also provides comprehensive technical support, release management, quality assurance and commercial extensions to open source products.

> The Pentaho Business Intelligence Platform

The Pentaho Business Intelligence Platform is an enterprise-class BI solution that improves the efficiency and effectiveness of an organization by deploying a comprehensive set of BI capabilities including reporting, analysis, dashboarding, data mining and workflow.

Figure 1 *Dashboards provide immediate insight into an organization's Key Performance Indicators and allow employees at all levels to share a common view of organizational performance*

Figure 2 *The Pentaho BI Platform delivers end user capabilities on a common technology foundation, providing centralized security and integration, report scheduling and workflow on a scalable, standards based architecture*



By providing a comprehensive platform that spans multiple end user needs, the Pentaho BI Platform helps avoid departmental information stovepipes, and enables IT to address end user requirements without the time and expense of supporting multiple disparate tools, technologies and platforms. From an end user perspective, a common platform facilitates easier sharing of information, one version of the truth, and fact-based decision making.

Finally, the Pentaho BI Platform uniquely integrates with and supports an organization's business processes. Standards based workflow is at the heart of the Pentaho BI Platform, orchestrating processes within the BI environment, as well as linking to external business processes to ensure relevant BI content is delivered to support and improve operational business processes.

TECHNOLOGY HIGHLIGHTS

- supports J2EE-compliant application servers for enterprise scalability
- provides Web Services based access to all components
- provides XML definitions for all content to enable creation and modification by means other than the graphical user interfaces provided, for example, manually or programmatically editing the XML
- uses a common repository providing server based storage and management of the definitions of dashboards, reports, templates, queries and other content
- delivers graphical administration
- integrates design tools as part of the Pentaho Workbench, which are delivered inside Eclipse
- includes security and compliance features such as role based security, business rules and logging
- supports Java single sign on JOSSO and LDAP to integrate with existing enterprise security.

> Comprehensive Business Intelligence Capabilities

REPORTING

Pentaho delivers reporting capabilities to support any reporting need, from operational reports and invoices to rich, graphical, analytical reports showing trends over time. "Bursting" support allows large numbers of reports to be securely and scalably delivered to thousands of users in a choice of formats, including HTML, Adobe PDF or Microsoft Excel.

ANALYSIS

Pentaho also provides sophisticated, interactive analytical capabilities, allowing end users to interactively explore information, uncovering opportunities and exploring root causes. The system provides a "dimensional" view of the data so business users can analyze data by product line, geography, business unit, time period or other dimensions of analysis. Analysis from Pentaho provides high performance, even against very large data sets.

DASHBOARDS

Dashboards provide immediate insight into an organization's Key Performance Indicators (KPIs), allowing employees at any level to share a common view of organizational performance. Dashboards help align employees to a common set of metrics, tailored to their roles and responsibilities, and can easily link to underlying reports and analysis for supporting details.

BI Platform

The Pentaho BI Platform delivers end user capabilities on a common technology foundation, providing centralized security and integration, report scheduling and workflow on a scalable, standards based architecture. The Pentaho BI Platform makes it easy for organizations to integrate actionable business intelligence with operational processes, ultimately improving their performance.

Experienced Team

Founded by industry leaders: The core project team at Pentaho has a strong track record of creating highly successful BI products for leading commercial software vendors including Business Objects, Cognos, Hyperion, IBM, Oracle and SAS. Together, they are seeking to achieve positive, disruptive change in the BI space by making a class leading BI platform free to everyone. **N**

For more information
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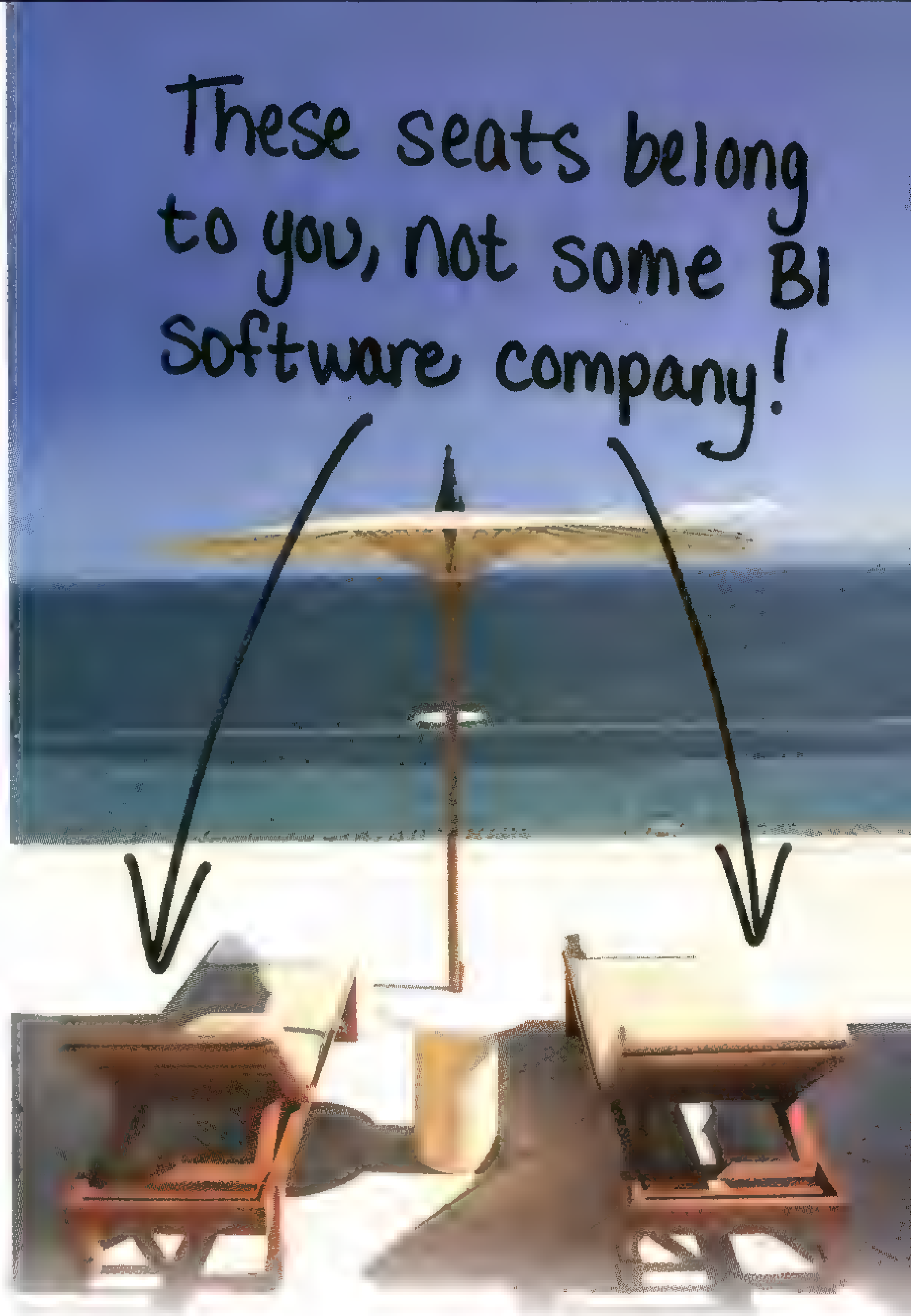

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	Pentaho	"The Other Guys"
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Standards-based, Modern Architecture	Yes	No
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*No vacation / trip will be paid for by Pentaho or its affiliates. Use the money you save by using Pentaho instead of BI from "The Other Guys." Come on, we're open source. Visit www.pentaho.org for product info.

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> Advanced Technical Training: Novell Identity Manager (2/3)

In this course, participants learn to use Novell Identity Manager 3 to accelerate the flow of information throughout an organization; enhance efficiency by removing the barriers between applications, data stores and network platforms; and (leveraging Novell eDirectory) create Novell Identity Manager policies that automatically distribute new and updated identity information within an environment.

> ATT Online: Novell Identity Manager 2 to Novell Identity Manager 3 Update

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> Advanced Technical Training: Provisioning Module for Novell Identity Manager 3

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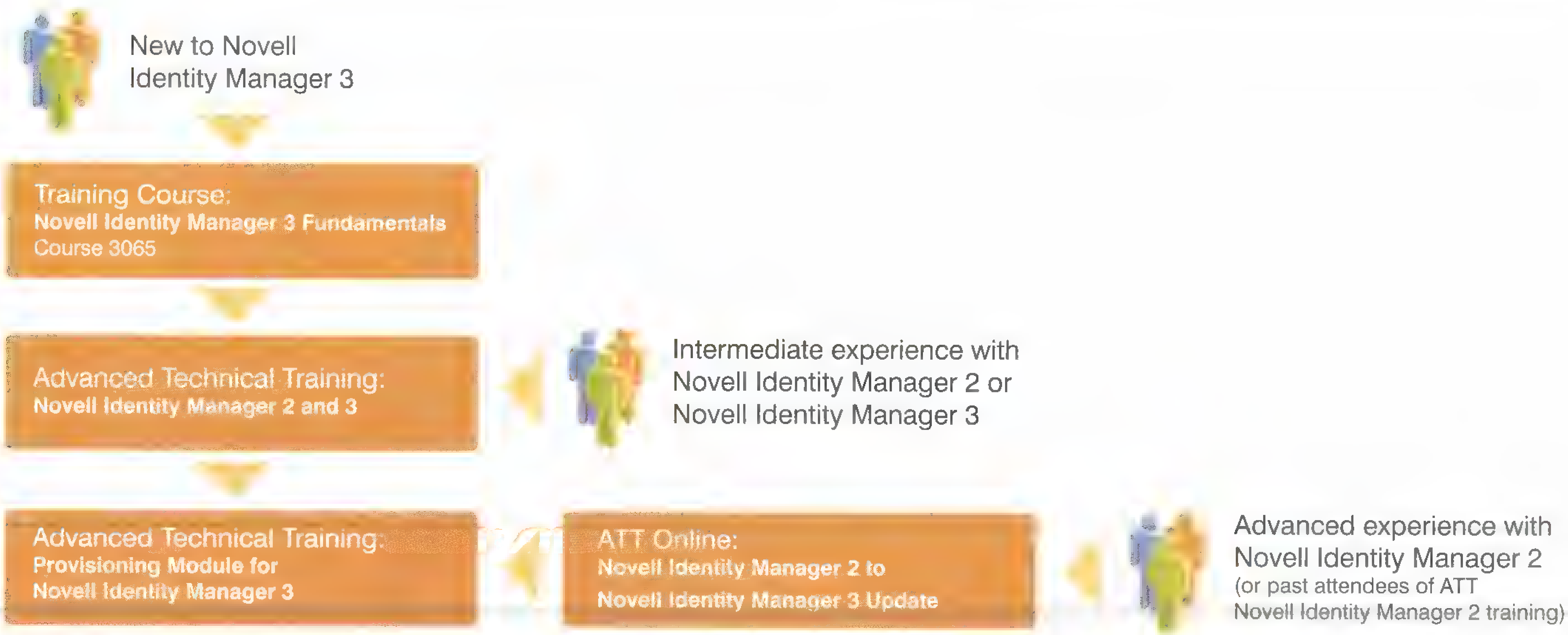

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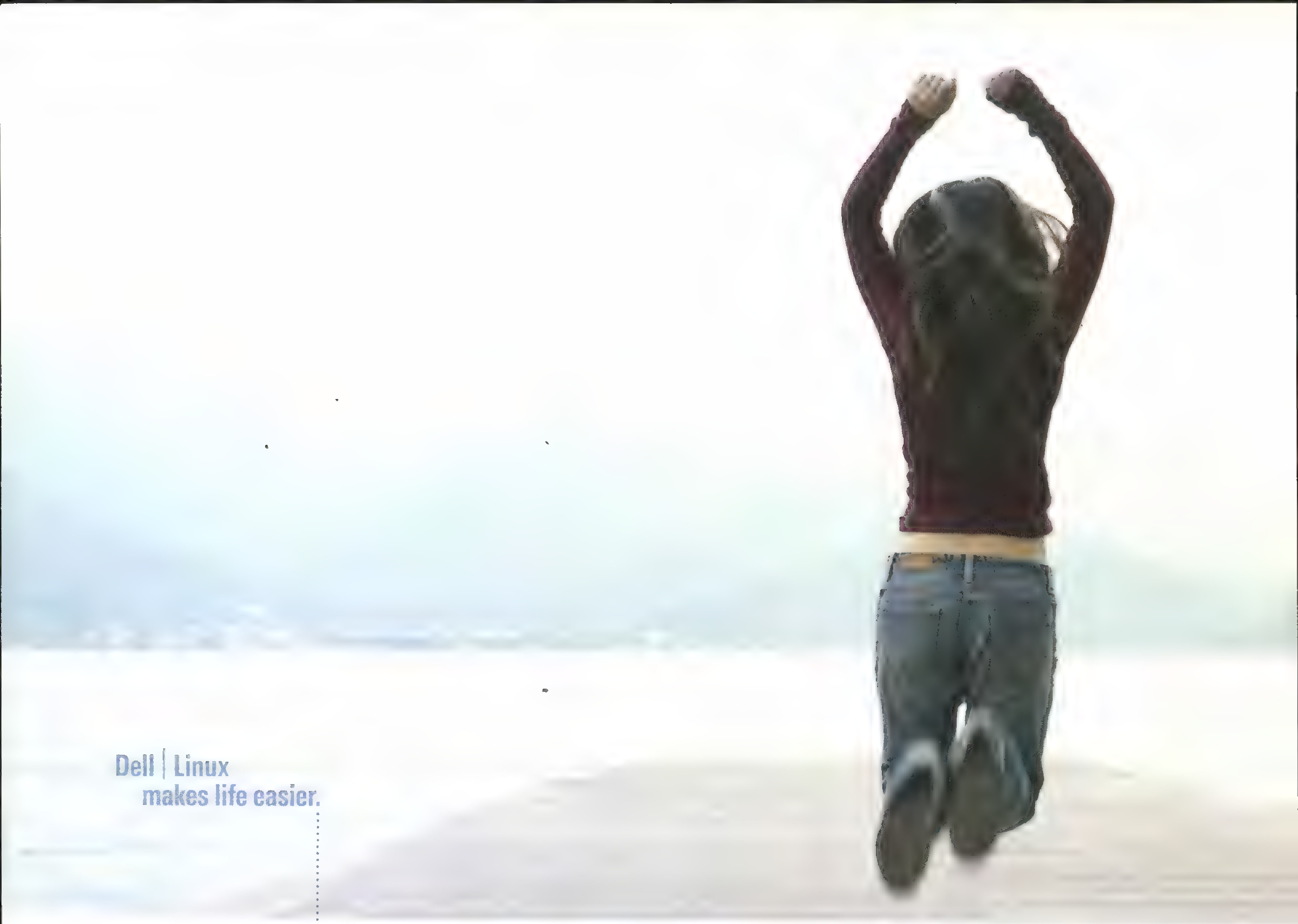

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Connection

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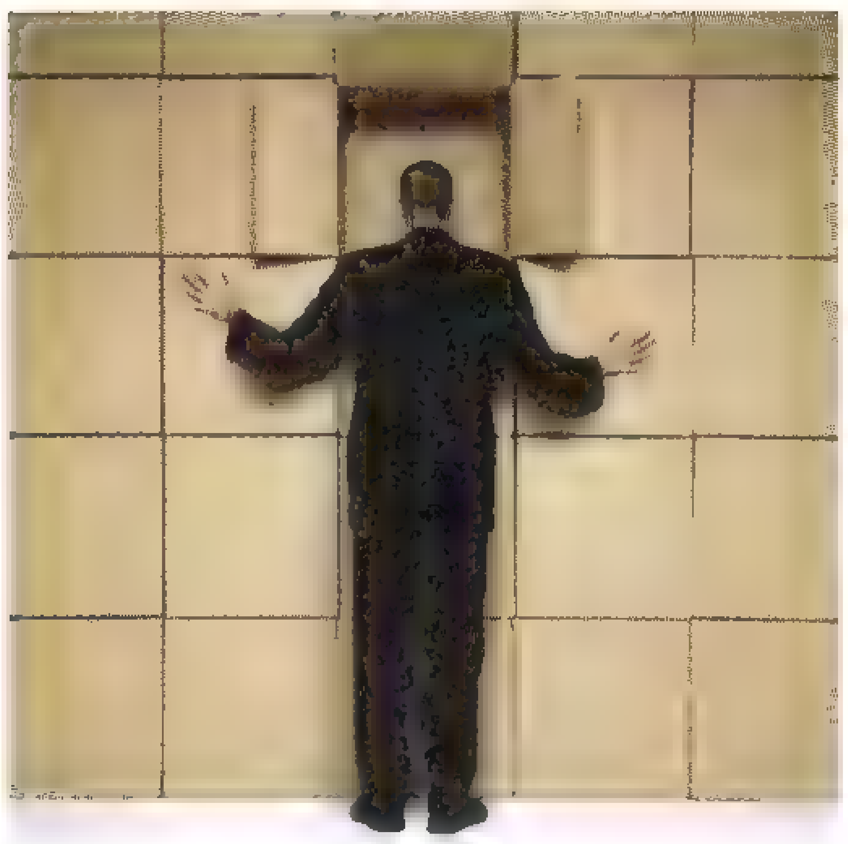

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- Schedule cross-server tasks (NLMs updates, distribution of files or console commands)
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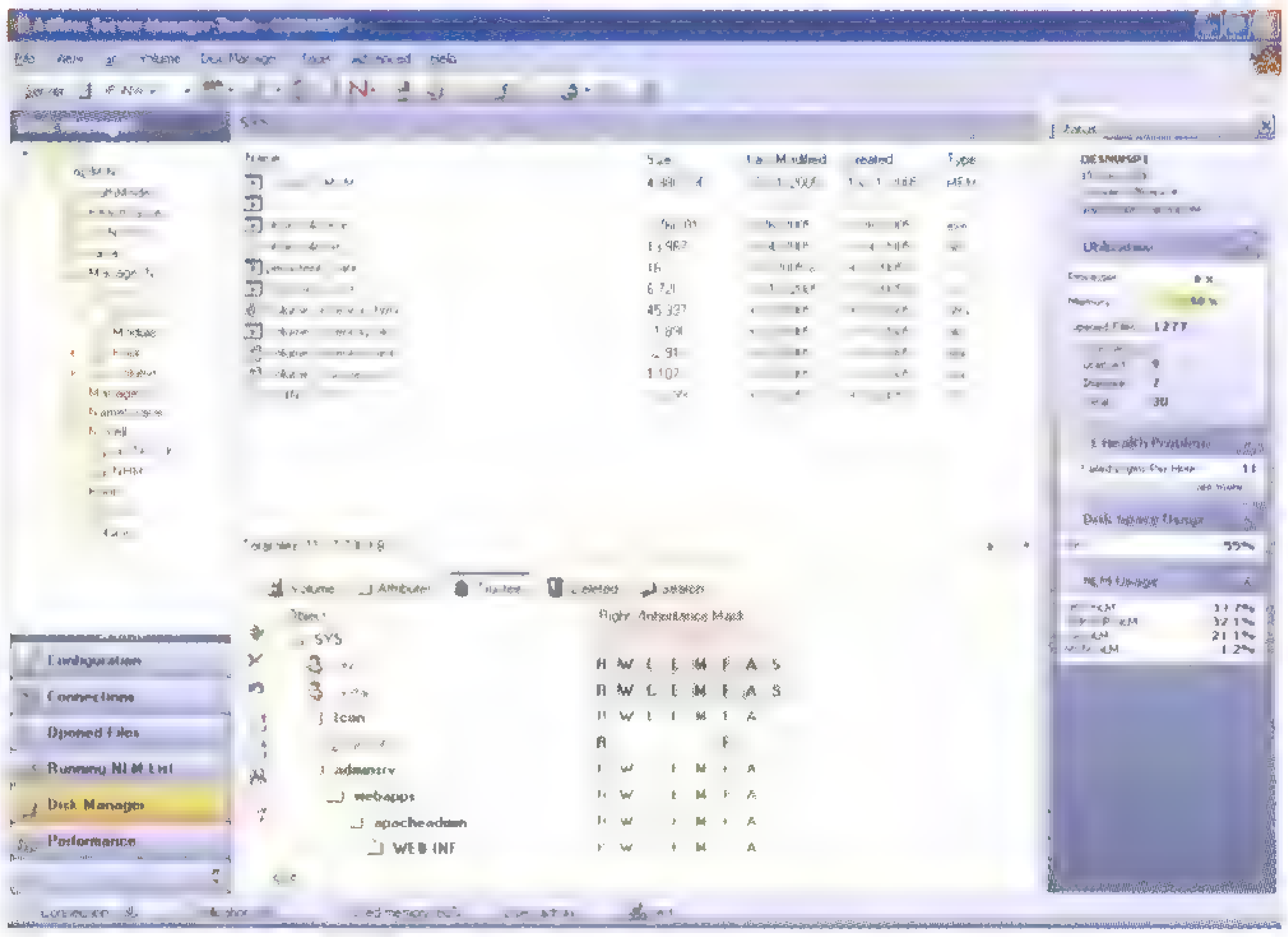
- Administer trustee rights (trustee backup/restore)
- Quickly access, compare, and modify all SET variables, Configuration and system log files
- Use it on OES and NetWare 6.x, 5.x, 4.11 SP9 and newer.



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If you've been putting it off...

Linux and open source. It's a big topic right now in our world; and it's getting bigger. So, if you're concerned with moving your business forward, it's time you really take a serious look at how open source software can improve your business. Besides saving your bottom line a few bucks, it could mean a host of other benefits for your company. It has for ours.

How many times have we heard that we should adopt Linux and open source solutions because they usually cost less than proprietary solutions? Yes, the relatively low acquisition cost is still a big issue that can ultimately benefit your bottom line. But it's not the only – or even the most important factor anymore in why many CxOs *choose* to run open source. In fact, 500 senior IT executives said, in a recent study conducted by Chadwick, Martin & Bailey, that their top decision criteria for choosing Linux and open source were reliability, security and performance. Cost, while still important, was fourth on the list. There's a long list of reasons how your business will benefit by implementing open source solutions in the areas where it fits best.

Granted, not every user in your company can, or should, move to Linux yet. But it just makes sense to migrate certain users to an open platform with open source solutions. With Novell as your partner, it's easier to not only decide which users can, and should, be on an open platform, but also how to get them there.

In *Plug In to the Hot Benefits of Open Source*, you'll get a taste of why open source makes more than just "cents" and how you can put those benefits to work in your organization. We explain how and why.

Further, we show you some of those open source solutions Novell uses internally and explain how we've implemented them in our own organization. Read the details in *Enjoy the Sensation!*

As you know, Novell just released a new enterprise platform that can help your business: SUSE Linux Enterprise 10. We include several open source solutions in both the server and desktop versions of this new platform, but we take a closer look at the desktop in this issue. Read about many of the solutions included in SUSE Linux Enterprise Desktop 10 and how they can help your users become more efficient every day in *We Have Opened the Box*.

Also take a closer look at arguably one of the most important open source projects that is a "must" for your world and throughout your enterprise: OpenOffice.org 2.0 and the Novell edition included in SUSE Linux Enterprise Desktop 10. Learn why you should be deploying it throughout your enterprise in *UP:GRADED*.

And staying with an open source theme, *You're Secure* shows you how to deploy to all your servers one of the many open source projects for which Novell is responsible: AppArmor. It's a unique profile based application security solution you shouldn't be living without on your Linux servers and desktops.

Now is the time; if you haven't already, to take a look at the open source solutions out there. Novell stands ready to help you implement the right mix of open source and proprietary software based on open standards that works for your organization. Building your business with open source solutions as a key component will provide a reliable, secure, scalable and low cost technology platform and give you the competitive advantage you need to thrive.

As always, we love to hear from you. Let us know what's on your mind or if you have feedback for us. Send e-mail to *editor@novell.com*. Enjoy this issue of *Novell Connection*.

Ron Hovsepian
PRESIDENT & CEO, NOVELL INC.

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Plug in to the Hot Benefits of Open Source—
It's Not Just About Saving Money

By Guy Smith

Open source is an IT strategy, creating greater business functionality and agility. How can open source bring long term benefits to your organization? Most people think—incorrectly, that is—that the only reason to use open source is because of the generally low cost. Although that's a reason—a very valid and important one—it's not the only reason, and arguably not even the most important one. Let's walk through some of the other reasons other CxOs are pushing for more adoption of open source technologies in their companies.

To start, consider these types of scenarios:

They did not write the application, but it was the heart and soul of their 250 person company. They needed a tiny change that, if it existed, would significantly streamline their internal processes, adding two percent to their gross margins.

They didn't beg their vendor for the new feature. They didn't wait years for it to appear. They didn't hire expensive consultants to engineer a kludgy work around. And yet they had the new feature about two days after it was conceived. One of their five-member IT staff wrote the enhancement, adding it directly into the product, and assured that the change would appear in all future versions of the product.

As I noted in my analysis of Linux (see *What CxOs Think About Linux* in the September 2004 issue or online at *novell.com/connectionmagazine/2004/09/bottom_line.html*), CxOs see open source as a strategic element in their IT shops, with benefits far beyond saving a little budget. Open source utilities and applications offer strategic benefits that bring real and recurring business advantages.

To understand these advantages, we must note that IT has a well defined mission, which is:

Automate business processes ...

... to gain competitive advantage ...

... without spending all the profits.

Like all software, a well selected open source tool automates processes and creates competitive value for your company. The open source difference lies in where proprietary software has erected obstacles to creating more competitive business advantages for you. Some areas where CIOs have encountered limits with proprietary software include:

- Unresponsive vendors who cannot, or will not add necessary features
- Slow response to bugs that disrupt business processes
- Vendors who exit a line of business and do not continue to enhance a product
- Competitive issues that prevent interoperation and integration of products
- Inability of vendors to support regulatory certifications
- Lack of access to decision makers and developers in a vendor organization
- Adverse licensing contracts that slow or prevent expanding the potential value of vendor software
- Security exceptions that create financial loss and legal liability

Open source tends to be free of these limitations, and thus grants IT a sophisticated set of strategic advantages. Open source also has some unique attributes that help create competitive value for you that would not otherwise exist.

Let's explore how some IT shops are besting their competitors using open source products and development methodologies.

> Open Source Strategic Points

Time to market

Proprietary software suffers from a competition for scarce resources. In order for a vendor to create the greatest wealth for their shareholders, they must invest development time wisely. This means creating only a small set of features that apply to the broadest number of paying customers.

Open source is not similarly limited. Open source projects attract people with selfish interest, namely creating a product that they would want to use. Open source projects are thus limited only by the number of contributors, which depending on the popularity of the project can easily be in the hundreds.

The net effect is that features tend to be created rapidly. Many companies that have a vested interest in an open source package are also active contributors, using in-house or contract developers to create new value in the system as needed (an option alien to proprietary products). With the open source "release often" ideology—creating updates and releases frequently—new features are often available in record time.

Integration

No software works independently, and integrating packages is becoming a higher priority for many IT shops. Open source shines at integration.

The lack of a central profit motive allows open source projects to be well architected, taking few—if any—short cuts. A side effect of this is a heavy reliance on open standards and well-defined interfaces (internal and external). Thus integrating an open source software package is more likely to occur than with proprietary products as the open source software was designed with integration in mind.

Integration is also accelerated due to the complete transparency of open source software. Every action and interaction is viewable

Strategic Benefits of Using Open Source

- Shorter time to market for new business capabilities
- Better application integration based on open standards
- Greater ability to influence or create new features in future releases
- Safety from vendor lock-in or abandonment
- Open source methods and tools aid partner co-development
- Reduced security, liability, regulatory and downtime risk
- Usually lower acquisition costs than for proprietary software

within an open source solution. This includes database schemas, transaction controls, all I/O, and all APIs. Whereas with "black box" software one would have to guess at safe and sane methods for creating a lasting integration, one can look at an open source package and determine the best possible approach to tapping the flow of data.

The last aspect to open source integration is that you have the ability to modify the code since you have license to it. If you need an open source package to work with other software, and the features are not readily available, you can create them yourself by modifying the code. Since you are building a dependence on this code for future business processing, you should contribute the code back to the project so it becomes part of all future releases. Try that with Microsoft!

Long term enhancements

Many large IT shops have intimate access to their software vendors, and can exert some measure of influence on the direction of future releases. But this access is reserved for the big spenders, leaving small and mid sized businesses (and many large ones) with no real control over their IT software strategy.

Open source changes this. Open source contributors are well known, and easily accessible through their project community sites. Companies willing to involve themselves in open source communities have significant influence over the direction new features. You simultaneously have access to other users of the software, and can influence their demand for your preferred changes.

The most interesting aspect of open source is that you can create the changes you need. Many companies allow members of their staffs to use company time to contribute to open source products that are used in house. This has two advantages: First, desirable new features to existing, complex software packages are created very quickly. Second, your staff gains an intimate understanding of the products on which your company depends. Combined, you achieve the matched goals of having more competitive advantage through software, and a more educated staff who can both understand a software package's behavior as well as change that behavior.

Some firms are opting to outsource open source changes. If an open source package is critical to your operation, but you cannot afford to spend staff hours on creating an enhancement, or if your staff does not have the requisite skills, you can hire contractors to create the new functionality for you. For some companies the cost/benefit analysis is amazingly simple as both are quantifiable.

Figure 1 *As with all software, a well-selected open source tool automates processes and creates competitive value for your company. By its nature, proprietary software has erected obstacles to creating more competitive business advantages for you. Those obstacles create strategic as well as tactical points that lean in favor of open source solutions.*

Open Source Strategic Points

- ↘ Less Time To Market
- ↘ Less Risk of Abandonment
- ↘ Lower Security Risks
- ↗ More Integration Options
- ↗ Influence Long Term Enhancement Roadmap
- ↗ Community-Style Partner Co-Development

Open Source Tactical Points

- ↘ Less Time for Minor Enhancements
- ↗ Bugs Fixed More Rapidly
- ↗ Structured Reusable Code

Partner development

One aspect of open source development which is only beginning to be noticed is the application of open source software methodologies and tools to partner development. No company is an island, and working with partners requires sharing information. The tighter the partnership, the more automated data sharing must be.

Some firms are applying open source products and open source methodology to integrate partner data. Often it is as trivial as two teams reviewing Service Oriented Architecture (SOA) aspects of their open source tools and creating data bridges. In more advanced cases, teams might be formed as if they were open source communities to create new applications or new functionality to existing open source projects.

The net effect is that partners are able to accelerate integration projects due to the "open" nature of either the core technology (existing open source software) or create new technology that is "open" to both parties.

The logical extension of this paradigm is that communities are rising to create software specific to their industries, or at least to technical disciplines that cross industries. Any time two or more companies have a similar need, there is an opportunity for open source to drive a solution set.

Risk reduction

Every choice made in IT software selection comes with risk. Open source software reduces, and in most cases eliminates these risks.

ABANDONMENT

The highest risk comes from software abandonment. If you choose a proprietary package that the vendor later abandons, you have few (if any) recourses aside from a forced migration. Open source solutions do not suffer this because the source code is available to all, including non-competing users. Open source packages are rarely "abandoned" as the community that created the packages is composed primarily of users, and the package remains under perpetual maintenance.

In very rare cases, the original creators of an open source package may want to turn it into a proprietary offering. Most open source licenses do not prohibit this, but they also allow for anyone else to take the original source code and evolve it separately. This "forking" of project assures that your reliance on an open source package is never at risk. For example, VA Software, the creators of SourceForge (an online repository for open source projects) wanted to convert SourceForge to a commercial project. After much debate, an announcement was made to the SouceForge community, and they forked the original design as VA Software created SourceForge Enterprise Edition (incidentally, VA Software and the SourceForge community still have a close working relationship).

One aspect to the non-abandonment of open source projects is that there is no break in continuity for you. Vendor support can disappear, and leave you with buggy software and no means of fixing it. Open source does not suffer these maladies as any bug is addressable.

SECURITY

Few people doubt the superior security provided by open source soft

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ware. Greater focus on design, greater stability, and the peer pressure that enforces a "security first" mentality creates more secure products. This directly reduces your exposure to risk on several fronts:

- Less chance of direct financial loss through information theft
- Less exposure to legal liability or regulatory penalty
- Greater uptime through enhanced stability

> Tactical Advantages from Open Source

Clearly, open source provides a number of long-term strategic advantages. But your staff lives IT day-to-day, and the tactical advantages provided by open source contribute to their work lives as well as your bottom line. The cumulative effect of these tactical advantages produce more strategic benefits.

Less lag on minor customizations

Often small changes in software have significant effects on end users. For example, changing the order of fields on a data entry screen can increase the efficiency of call center workers. With open source, minor changes in utilities and applications can be made quickly. With proprietary software, you might never see a minor customization as the limited vendor development staffs working on commercial products are focused on major enhancements and releases, and not minor, customer-specific improvements.

Rapid bug fixes

Enterprises have two advantages vis à vis software bugs when using open source.

First, open source products do not suffer bugs for very long. Open source projects are typically founded on the "release frequently" philosophy. Though not as numerous as in the past, open source projects release new versions constantly as minor changes and bug fixes are incorporated. This means that any open source product you adopt will most likely fix bugs more rapidly than a commercial equivalent could.

Most open source projects have robust, online bug reporting systems and procedures. You can report a bug online, and track the progress of the community's efforts to fix the software. I experienced one episode where a corner-case bug was reported in the morning, analyzed by two community members midday, patched by the afternoon, and an automatic email notification was sent announcing the repair before 3PM.

But sometimes fast is not enough. Our industry has millions of horror stories about a new bug in mission critical software that a vendor was slow to fix. The second bug-oriented benefit with open source is that if a defect arises that severely impacts your business, you have the option of digging into the source code yourself and fixing the problem. Many firms adopting open source include on their evaluation check list the programming languages of projects, to make sure their staffs have the requisite skills to debug the software.

Reusable code

Open source projects tend to be modular, and build upon libraries of lower level open source code. Because of these mirrored factors, much of open source is readily reusable, not only in and between open source projects, but also in your home-grown software. If you have a development team that already composes or uses source libraries for their in-house development, adding open source is a breeze. If you do not have such a staff, but want the advantage of reusable code, a great starting point for your staff would be to acquire and catalog some of the foundation open source libraries that are commonly used for creating other open source projects. This acquaints them with baseline tools, and gives them insights into what can be built as they discover these tools in larger open source packages.

> CxO Payoff

Open source is more than just Linux, and the benefits of open source are more than just cost savings. The payoff for CIOs and CTOs are strategic, and will have long lasting benefits. The question is "how do you expand the role of open source in your organization?" As with Linux, the answer is straight forward.

- First, give your staff time to explore existing open source libraries and tools. This will acquaint them with open source communities and projects, and learn how these groups create and support software.
- Second, list the skill sets you want to develop in house for the long term. This will help in identifying open source projects that you will later adopt.
- Identify a non critical business process in which you are receiving less than desirable support from your vendor, and review the open source alternatives. This could be IT utilities, end user applications, or even customer-facing services.
- Implement this new open source software and participate in at least one bug fix, one customization, and one contribution to the project. This will give your staff the experience necessary to participate in the full deployment lifecycle of an open source project.
- Next, aim high. Find an area of business where a new solution will bring significant new business and competitive advantages. Find the open source alternative that will best drive these new capabilities, and plan your deployment. Measure the time and cost for deployment and remediation, and compare to past projects with proprietary software.
- Finally, participate deeply in the community around this high-value software. Allow your staff sufficient time to become part of the project and contribute to future releases, with the goal of influencing the feature set to your advantage.

With open source as a centerpiece of your IT strategy, you will find yourself gaining business agility faster than your competition, and releasing yourself from dependency on vendors who have failed to deliver. **N**

Open Source Projects Supported by Novell

Here is a partial list of some open source projects which Novell founded or to which they contribute. The full list can be found at *http://developer.novell.com/opensource/.*

Bandit A system of loosely-coupled components to provide consistent identity services. Bandit is building additional services needed for Role Based Access Control (RBAC) and for the emission of records to verify compliance with higher level policies.

Eclipse Provides vendor-neutral open development platform and application frameworks for building software.

Higgins A framework that enables users and enterprises to integrate identity, profile, and relationship information across multiple systems.

iFolder File sharing application for Linux, Windows, and Mac.

Mono A platform for running and developing applications, based on the ECMA/ISO Standards. Mono can run existing programs targeting the .NET or Java frameworks.

OpenOffice A multi-platform and multi-lingual office suite with word processing, spreadsheet, presentation, illustration, and more.

Wine A compatibility layer for running Windows programs on Linux desktops.

Xen A virtual machine monitor for x86 that supports execution of multiple guest operating systems.

Security Without Breaking the Bank

Stonebridge Bank

By Liz Tanner

With nearly US$400 million in assets, Stonebridge Bank combines community banking with advanced online technology. Based in West Chester, Pennsylvania, Stonebridge Bank serves commercial banking customers through locations in Pennsylvania and Maryland, while offering customers around the nation a complete range of retail banking services through *stonebridgebank.com*.

> Challenge

As a community bank, Stonebridge Bank faces tough competition from bigger commercial banks. The bank's key to success is maintaining an efficient IT infrastructure that reduces overhead costs and allows the bank to provide its customers with competitive rates and services. Stonebridge wanted to replace its costly Microsoft Windows systems and consolidate its data center.

But changing its underlying infrastructure could not affect the bank's security or performance. The bank receives an average of 105,000 attack attempts per day and relies on sophisticated intrusion protection to safeguard its data. Downtime is also not an option for its Web site which requires constant availability. Stonebridge began searching for a data center solution that would help it retain its security, performance and competitive advantage.

> Solution

To replace its existing systems, Stonebridge Bank worked with eNvision Data Solutions, a value added reseller and Novell Gold Partner in Pennsylvania. The bank switched from Windows and Red Hat to SUSE Linux Enterprise Server, and uses Novell Open Enterprise Server for superior directory, file and print services on Linux.

"We moved to Linux because we liked the idea of an open enterprise and needed a good environment for virtualization," said George Rapp, senior vice president of Information Systems. "Novell gives us the best technology, pricing and support options for Linux."

Using VMware for virtualization, Stonebridge Bank consolidated 131 servers to 22, half of which are running Novell Open Enterprise Server and SUSE Linux Enterprise Server. The bank now runs all of its network services and several mission critical systems on Linux including Apache Web servers, Applied Watch intrusion and detection software, as well as its helpdesk and disaster recovery solutions.

"With SUSE Linux Enterprise Server and VMWare, Stonebridge Bank is running more than 80 virtual servers on two physical servers and still has room to grow," said Randy Bender, president of eNvision Data Solutions. "Taking advantage of 64 bit computing has greatly improved overall performance of mission-critical applications so the bank is now moving everything possible to Linux."

A Novell Linux solution has not only reduced the bank's administration time, but has also eliminated the need to hire additional staff. One person now manages the bank's Linux environment, relying on YaST in SUSE Linux Enterprise Server for centralized, graphical administration.

"It's been extremely easy for staff familiar with Windows and NetWare to pick up Linux," said Rapp. "Linux gives us a common skill set and simplifies administration so we spend far less time managing our data center."

By consolidating servers and reducing administration time, Stonebridge has reduced its total cost of ownership for each server from $230 to $31 per server per month. This savings allows the bank to purchase more storage to strengthen its disaster recovery solution.

"We don't need to purchase a lot of server add ons to make our Linux servers reliable and fast," said Rapp. "We can get fully loaded Linux servers at a fraction of the cost and space requirements of proprietary servers."

Banks are continually responding to new regulatory requirements, which often require new technology solutions. Stonebridge can now access open source applications to meet these requirements, while dramatically reducing its software costs. The bank recently implemented an open source solution for helpdesk ticketing, as well as a system to document Web site changes.

GroupWise for Linux now runs on a virtual server and is the bank's primary internal and external vendor communication tool. GroupWise Messenger gives users secure instant messaging with other bank employees, critical when communicating about sensitive financial information.

"We evaluated a move to Microsoft Exchange, but moved to Novell GroupWise instead for one tenth the cost," said Rapp. "GroupWise security has been exceptional. We have never had downtime due to a virus attack."

> Results

By moving from Windows to Novell Open Enterprise Server, SUSE Linux Enterprise Server and virtualization, Stonebridge Bank consolidated its servers by 83 percent and reduced its costs per server by nearly 90 percent. The flexibility to use open source applications to respond to regulatory requirements also helps the bank manage its software costs.

"Our management team is impressed not only with our cost reductions, but also that we have performance metrics that rival bigger banks," said Rapp. "A Novell Linux solution gives us flexibility and security to continue to expand our business. We've remained a secure enterprise, despite the wide spread virus attacks that have affected other organizations." N

Challenge
Reduce IT overhead costs by replacing costly Microsoft Windows systems and consolidating the data center.

Solution
Novell Open Enterprise Server/SUSE Linux Enterprise Server.

Results
Consolidated servers by 83 percent, reducing costs per server by nearly 90 percent. Reduced software costs with open source solutions. Achieved performance metrics that rival much bigger banks.

For more information or to have a Novell Representative contact you, please visit novell.com/ncmconnect.

By Nathan Conger

we have opened the box

Mind-bending Innovation and Usability Included in Today's Next-Generation Desktop OS

Since the dawn of the new millennium, the coming of a next generation Desktop OS has been foretold. The folks in Redmond promised their own innovative and timely release that included enhanced usability, integrated search, new graphical effects—and an obligatory hardware upgrade. Wait a second; that was 2003; what happened? That question merits another article altogether—one that mentions viruses, malware, trustworthy computing, software assurance and integration issues among other things.

So without further adieu, let me introduce you to the next generation desktop OS: SUSE Linux Enterprise Desktop 10, and all the great open source software that accompanies it.

Released in July 2006, SUSE Linux Enterprise Desktop 10 delivers on the promise of enhanced usability, integrated search, stunning new graphical effects, a comprehensive office productivity environment and more all without having to upgrade your hardware.

How has so much innovation been achieved on the Linux platform in such short order? Two words: the Community. Because of the openness and flexibility of the Linux platform, thousands of individuals and organizations have contributed to Linux and to the many applications that leverage it up the stack. (We'll explore many of these in this article, so keep reading!)

As an active member of the open source community, Novell realizes several benefits. It has leveraged the development efforts of like-minded organizations and individuals to bring these benefits to end users. Novell products enjoy greater interoperability with a wide variety of platforms and applications because of the community's adherence to open standards.

Novell, in turn, demonstrates its good citizenship in the open source community by actively contributing to and maintaining a number of open source projects, including: GNOME, OpenOffice and the Linux kernel. (See *Linux and Open Source Leadership* in this article as well as *Enjoy the Sensation!* in this issue.)

Novell also sits on the board of Open Source Development Labs and is a member of the following three organizations:

- Open Document Format Alliance
- Open Invention Network
- Apache Foundation

Since the release of the 2.4 kernel (circa 2000), Linux has been on a steady march from the edge of the network, to a reference application platform, to the core of the data center. Linux has become a de facto standard on the server, shipping preinstalled from several hardware vendors and system integrators. Linux server shipments alone grew 20.5 percent from 2004 2005, compared to 15.3 percent for Windows servers for the same time period. *(http://lwn.net/Articles/161433/)*

Is Linux a viable platform for your desktops today? YES! To understand the best use cases for Linux on the desktop, it's helpful to segment users into categories. Open Source Development Labs (OSDL) has identified five key user categories:

- fixed function
- transactional worker
- technical workstation
- basic office
- power user desktop

Fixed Function: Felix, a grocery store clerk, uses a single point of sale application to perform his job. His machine boots and starts the application, displaying its first screen. Felix doesn't have access to any desktop widgets or menus. The only interface presented is the application itself. He interacts with it, but has no knowledge of the underlying Operating System and no way to access it.

A few examples of fixed function machines include modern cash registers, airline boarding pass kiosks and ATM machines.

Transactional Worker: Tracy, a hotel clerk, runs a few business applications on the desktop. One is a DOS-based application that manages guest check in and check-out. Another is a terminal emulator that connects to a mainframe that manages billing. The third application tracks reward points and is Web-based, Tracy uses Firefox to access it and occasionally uses e-mail to send messages to other coworkers.

Typically, users of these desktops include travel agents, bank administration personnel and front office personnel.

Technical Workstation: Tom works for a movie animation studio and uses a specialized application to create animated characters and scenes. The animation application he uses is designed to run on both the operating system and the underlying hardware. Tom also uses a simple e-mail program and does some instant messaging. He occasionally browses the Web for technical information.

This segment includes animation studios and engineers using CAD/CAM. These applications are often written in C/C++ and are highly dependent on the operating system user interface environment.

Basic Office: Barry, a software analyst, uses his computer for a variety of tasks. He spends about two hours a day using e-mail and calendaring. He uses Firefox to do research and update his blog. He creates and edits internal- and external facing documents and designs presentations for his company's sales force.

Generally, basic office workers require only basic compatibility, such as simple import and export functionality with other document formats, such as Microsoft Office. They require basic browser support (read Firefox) to access information such as corporate guidelines, parts information and loan information. They use e mail to communicate information and to send documents via attachments.

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These users include loan officers and insurance agents who work in connected environments.

Power User: Paul, a hospital administrator, uses a variety of applications to perform his job. He uses an internally developed time card program, an expense reporting application and spends a healthy chunk of his time using e-mail. He likes a lot of the new features that are available with the latest e-mail client and uses them to drive better productivity with his staff. Gary has used his desktop for years and feels very comfortable and productive.

Power users use desktop computers to drive company processes. They use arbitrary Windows applications that are dependent on Windows application program interfaces (APIs) such as MFC, Internet Explorer and WIN APIs. They are highly skilled in the Windows user interface, and they depend on being able to interact with the Windows operating system and Windows-based applications to do their jobs.

Users of power user desktops employ several applications to create and modify complex documents for use within and outside of their companies. Often people in this consumer segment *don't want to move away from Windows.*

> Enter SUSE Linux Enterprise Desktop 10

Desktop Linux has moved beyond geekdom and steadily meets the needs of a wider audience of users. Linux has been a more than ample platform for the first three user categories above and now meets the needs of the next user category: Basic Office User.

From the beginning, the design and engineering efforts of SUSE Linux Enterprise Desktop 10 have focused on the needs of the basic office user. To this end, a full office suite, messaging and collaboration applications, and a full-featured browser are included out of the box.

To create a more usable and productive desktop environment, Novell has invested heavily in human factors and interface testing. To help meet these design goals, Novell founded the Better Desktop Project and the Tango Desktop Project. Other areas of focus include full plug-and-play support for iPods and mp3 players, digital cameras and pen drives.

Novell has also spearheaded development work on XGL graphics acceleration and the Compiz desktop effects framework. Technology that moves desktop usability and coolness into a whole new sphere...or shall I say, cube.

> Better Desktop *(betterdesktop.org)*

The Better Desktop Project is dedicated to sharing usability data with Linux developers. During the past year, Novell has conducted many usability tests on different parts of the KDE and GNOME desktop environments. Developers and users can watch videos of these tests on the Web site.

Test subjects are selected from a cross section of different user groups. The majority are users with moderate Windows experience with little to no existing Linux familiarity. Subjects are asked to complete several tasks including browsing to Web sites, sending e-mail, playing music files and creating documents. Their movements, reactions (verbal and nonverbal) and the time to complete the given tasks are recorded and analyzed. The data is then used to validate the effectiveness of different interfaces and directly influences the graphical interface design.

> Tango *(tango-project.org)*

The Tango Desktop Project was founded to create a consistent graphical user interface experience for free and open source software. The Tango Desktop Project defines an icon style guide to which artists and designers can adhere. In addition, the project provides transitional utilities to assist in creating icon themes for existing desktop environments, such as GNOME and KDE. What does this mean to your end users? They get a cohesive, consistent desktop experience with icons and tools in their anticipated places.

Because Novell is the #1 contributor to both the GNOME (*gnome.org*) and KDE (*kde.org*) desktop projects, it channels what is learned through its testing back into each desktop environment and quickly validates the effectiveness of any changes. You'll see this attention to detail in the SUSE Linux Enterprise Desktop 10. (GNOME and KDE are graphically rich open source desktop environments for Linux and UNIX operating systems.)

> Office Productivity: SUSE Be Thy Name

A desktop OS is only as usable and productive as the applications it supports. To that end, SUSE Linux Enterprise Desktop 10 is a solid platform for a host of office productivity applications, let's explore a few:

> OpenOffice.org *(openoffice.org)*

With the release of version 2.0 last Fall, OpenOffice.org reaffirmed it's position as the premier open source office suite in the market. OpenOffice.org includes word processing, spreadsheet, presentation, drawing and database components and is compatible with all major office suites, including Microsoft Office and Corel WordPerfect Office. The office suite is also multiplatform, running on several operating systems, including: Linux, Windows, Solaris and OS X.

What's cool in Version 2.0? Bean counters will rejoice now that Visual Basic Macros and Pivot tables are fully supported. (Now all those nifty Excel spreadsheet functions just work.) Open standards advocates will smile now that all native OpenOffice documents are based on Open Document Format. And end users will appreciate the native look and feel and user interface enhancements. For a more exhaustive list of what's new and what's cool, see *UP:GRADED* article in this issue.

For organizations that use Windows desktops and want to leverage OpenOffice.org, Novell provides a fully supported Windows version of OpenOffice. This is also a great transitional step to migrating to SUSE Linux Enterprise Desktop 10. (To read about how Novell transitioned its own employees from MS Office to OpenOffice.org, and gained a seven figure savings in the process, check out the Building

Linux and Open Source Leadership

Novell has the greatest number of dedicated engineers working on Linux-related and open source projects than any other organization. Here's a partial list of projects Novell is a key contributor for:

- Apache
- AppArmor[1]
- BetterDesktop[1]
- Eclipse
- Evolution[1]
- GCC[3]
- GNOME[1]
- HULA[1]
- Novell iFolder[1]
- KDE[1]
- Linux Kernel[3]
- Mono[1]
- Firefox[2]
- MySQL
- Open Invention Network[3]
- OpenLDAP
- OpenOffice.org[2]
- OpenSSL
- openSUSE[1]
- Openswan
- Open WEBEM[3]
- PHP
- Perl
- PostgreSQL
- Reiser
- rsync
- SAMBA[3]
- Tomcat
- X.org[3]
- XGL[3]
- YaST[1]

[1] Novell is the #1 contributor or maintainer of this open source project.
[2] Novell is the #2 contributor to this open source project.
[3] Novell is a leading contributor to this open source project.

Blocks series of articles in Novell Connection magazine online at *novell.com/connectionmagazine/2004/09/tech_talk_5.html.*

As the number two contributor to the OpenOffice.org project, Novell addresses defects found by customers and the community and drives these enhancements back into the project. Novell also includes additional fonts in both the Linux and Windows versions of OpenOffice.org, achieving greater document fidelity and compatibility with other office suites. If you evaluated OpenOffice a few years ago, take another look. It's arrived and here to contend!

> Novell Evolution 2.6 *(novell.com/products/evolution)*

Arguably more important than an office suite, collaboration through e-mail and calendaring are must-haves in today's workplace. Enter Novell Evolution 2.6. Evolution sports a comfortable look and feel and consistent user interface. Calendaring, e-mail, contacts and tasks are all in the locations you would expect. (SEE FIGURE 1.)

Evolution tightly integrates with several e-mail and calendaring back-ends, including Novell GroupWise, MS Exchange and any POP or IMAP-enabled system. (For a list of supported platforms, see *novell.com/products/evolution.*) The e-mail client can deftly manage multiple e-mail accounts and apply uniform rules and filtering to all received e-mail.

What's cool? Full iCalendar support. iCal is an open standard that allows independent e-mail systems to share calendaring information. This is great for cross-organizational meetings and recurring events. Evolution also natively integrates with the GNOME desktop calendar. When the desktop calendar is clicked, the day's appointments and tasks also show up for the selected day. Appointment and meeting alarms also appear as an integrated part of the desktop.

For users that are comfortable with the GroupWise user interface, a full cross-platform GroupWise client is also available that supports Linux and OS X desktops. And you can also get a native Lotus Notes client for your Linux desktop.

> GAIM *(gaim.sourceforge.net/gaim)*

Instant Messaging, love it or hate it, is fast becoming a necessity in cubeville. What OpenOffice is to office suites, Gaim is to instant messaging, plugging natively into several instant messaging services. GAIM supports all major messaging protocols today including GroupWise Instant Messenger, MSN Messenger, AIM, Yahoo!, ICQ, IRC, Jabber, Gadu-Gadu, SILC, Lotus Sametime and Zephyr networks. (SEE FIGURE 2.)

What's Cool? A host of plug-ins include real-time spell checking, smiley shortcuts and file transfer support (depending on the system).

GroupWise users can use the native GroupWise Instant Messenger Client. And the progressive, peer-to-peer types can download a full Skype client.

> Firefox 1.5 *(mozilla.com/firefox)*

Mozilla Firefox is fast becoming the rising star of the open source movement. With 10 percent of the market (both Linux and Windows desktops), Firefox is driving innovation with features like tabbed browsing, RSS news feeds and integrated search capabilities. Novell is the #2 contributor to the Mozilla Firefox project.

What's cool? Firefox extensions: small add-ons that offer additional functionality. My favorites are gmail notifier and flash block. For a full list of available extensions, visit *addons.mozilla.org/firefox/extensions/.*

> Novell iFolder 3 *(novell.com/products/ifolder)*

An integrated secure storage solution for desktops and laptops, Novell iFolder allows you to back up, access and manage your files from anywhere at any time. Once installed, when you save files locally (no change in routine here), iFolder automatically backs them up and delivers them to other machines you have designated that have iFolder installed. Novell open sourced iFolder in 2004 and leverages the community to continue to drive new features and functionality into the product. (SEE FIGURE 3.)

What's cool? Full integration with Linux, Windows and OS X.

Figure 1

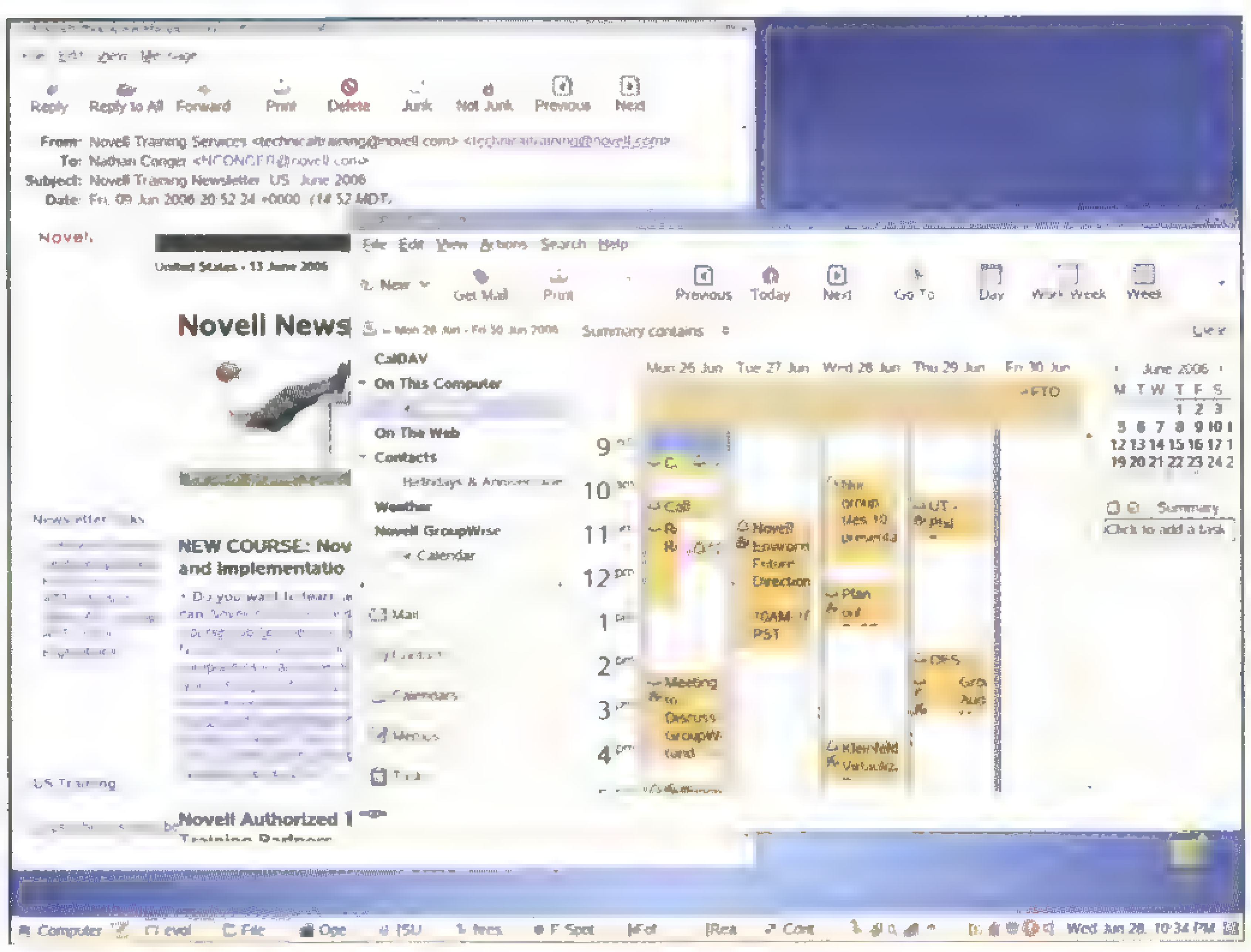
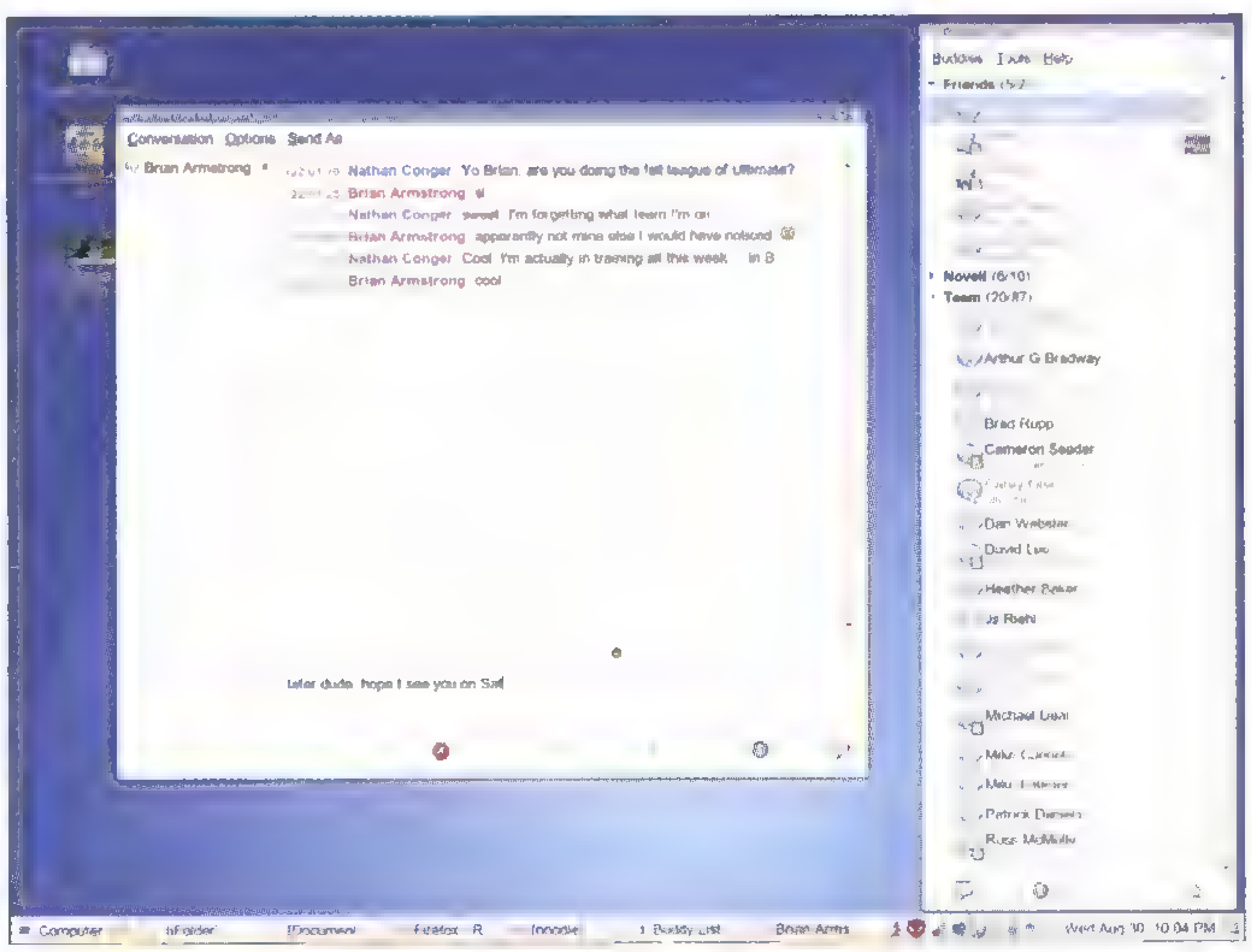


Figure 2



Simply right-click on a folder and choose to make it an iFolder. Access your files through a browser when iFolder is not installed on the machine. Integrated sharing allows you to give others on your team read, read/write or full control privileges to your iFolders.

> Tomboy *(tomboy.org)*

Think of Post its without the clutter. Tomboy is an easy to use desktop note-taking application that lets you rapidly capture ideas, information and notes as they come up throughout your day. Tomboy also helps to tie all this information together in a readily searchable and organized way.

What's Cool? In-line spell checking. You can also easily print and export notes to HTML.

> Beagle *(beaglewiki.org)*

This is a very cool integrated desktop search for which Novell is the #1 contributor and maintainer. We've understood searching for a long time as it applies to the Internet, but it's now being leveraged to its full potential on the desktop. Enter Beagle; never lose another document, Web page, chat or e mail again. (SEE FIGURE 4.)

Beagle combs your personal information space to find whatever you're looking for. More than just filenames and extensions, beagle can search file contents of any type, such as documents, PDFs, Web histories, source code, images, applications, RSS feeds, IM chats and music and video files.

What's cool? Beagle is integrated into the SUSE Linux Enterprise Desktop 10 experience. You can search from the main menu or from any open Nautilus file browser. The results are lightning fast, include full file previews and display the context of the match. You can search for the name of a coworker and immediately, all e mails, chats, blogs, documents and other files containing that name are displayed. You can also save frequent searches and they are updated on the fly when you reopen them or another file that matches the query is saved.

> Network Manager

New to SUSE Linux Enterprise Desktop 10 is the Network Manager applet. Gone are the days of command-line enabling your wireless or wired Ethernet cards. Network Manager detects the fastest connection available and chooses it for you. If you're at your desk and your laptop is wired to the wall socket, your wired connection is used. If you disconnect and roam to a meeting on another floor, it automatically chooses a wireless connection based on the availability of wireless networks.

What's cool? Integrated VPN support. From the same Network Manager applet, you can configure your VPN connections (multiple if needed). Out of the box, it supports Nortel, Cisco and OpenSwan VPNs.

> Seamless Network Integration

SUSE Linux Enterprise Desktop 10 not only coexists, but also tightly integrates with your existing network infrastructure. The desktop can authenticate to Active Directory, eDirectory, LDAP or NIS credential stores. A full Samba client—integrated into the GNOME Desktop—allows mapping to Windows shares. You can also use the Novell Client for Linux to allow users to authenticate to eDirectory(NDS), run login scripts and map drives.

To print, SUSE Linux Enterprise Desktop 10 supports CUPS (Common Unix Printing Standard), Windows printing through Samba and IP based printing. You can also use Linux iPrint client.

> Full Laptop Support

Yes, it's here, full support for the advanced power management features in modern laptops. Hibernate and suspend are fully supported and you can initiate them from the Power Manager applet found in the system tray. Bluetooth is also supported and completely configurable through YaST. Bluetooth is great for transmitting files back and forth from Bluetooth enabled devices. It's also great for wireless headsets, mice and keyboards.

Figure 3 *Folder 3 [illegible] change [illegible]*

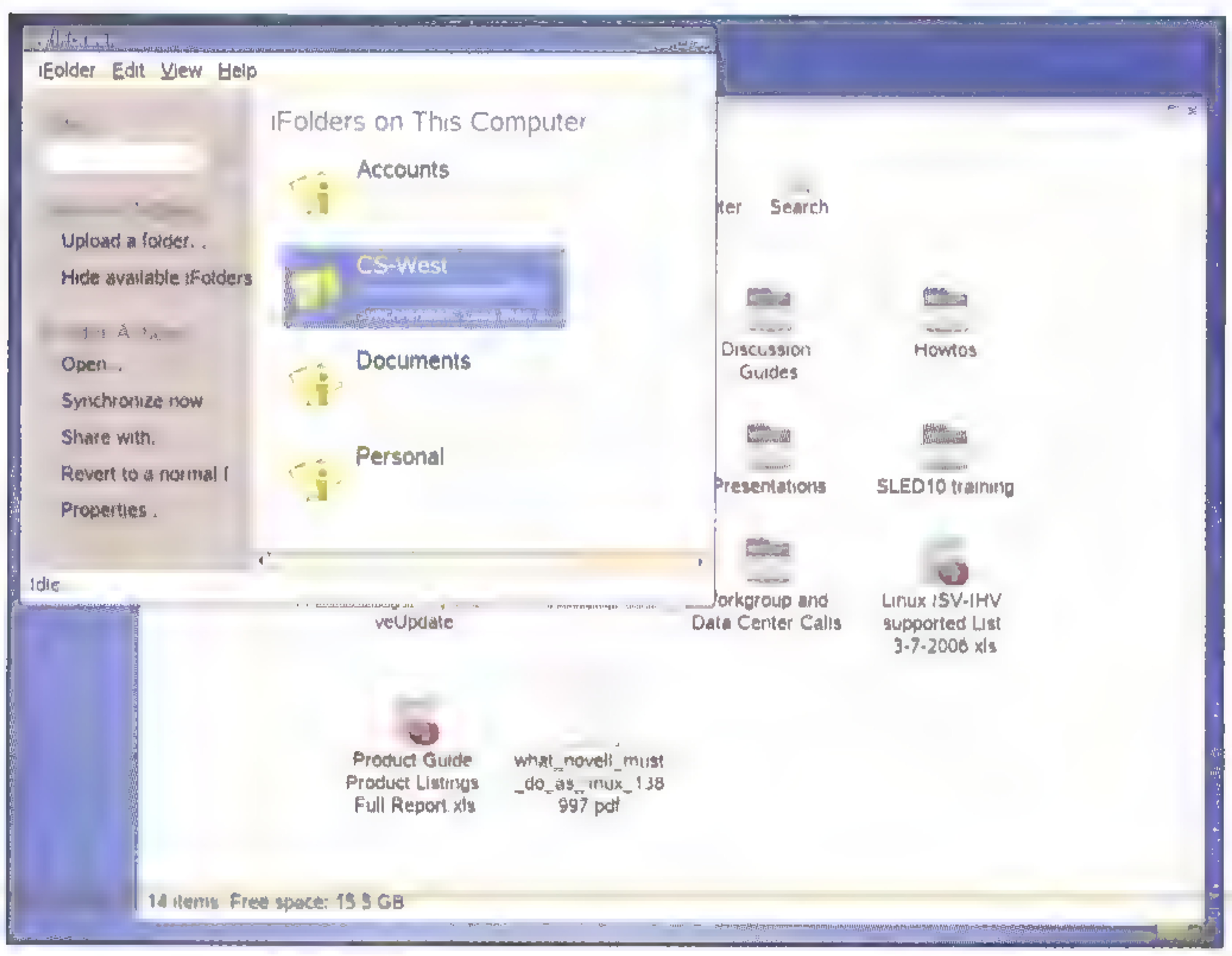
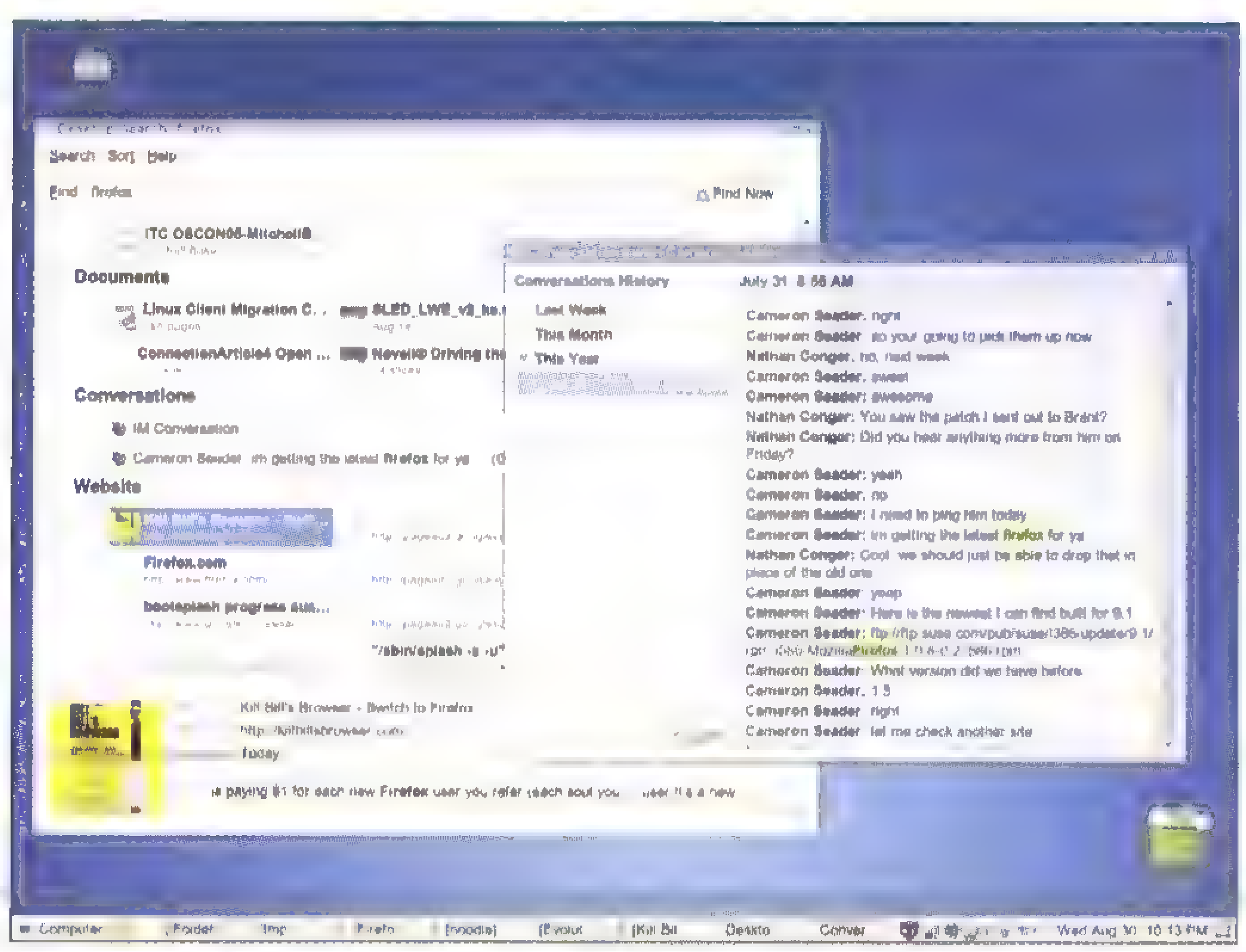


Figure 4 *Desktop Search, based on Beagle technology, combs [illegible] to make documents, files and information easily accessible*



> Application Compatibility

Today, SUSE Linux Enterprise Desktop 10 meets the needs of the vast majority of desktop use cases. Users that run applications requiring Windows components can effectively get around that hiccup by using a variety of solutions, such as emulation, virtualization and application publishing to decouple the applications from the underlying operating system.

Often, equivalents such as OpenOffice already exist in the open source community that offer full compatibility with proprietary applications and formats. If a Linux application with the required functionality is not available, you should evaluate emulation as a possible solution. Wine and CrossOver Office are two solutions that actually leverage each other and allow Windows apps to run on Linux by translating Windows APIs to equivalent Linux APIs. CrossOver Office certifies several applications to run in its environment. For example, Microsoft Office, Internet Explorer and Adobe Photoshop are all certified to run on Linux through CrossOver Office.

Cedega is another emulation solution targeted specifically to Windows Games such as WarCraft, Splinter Cell and others. Like CrossOver Office, Cedega continually certifies Windows Games to run on Linux.

When emulation is not suitable for the target application or environment, application publishing using Ericom or Citrix is probably the right option. Leveraging Windows Terminal Services, Ericom and Citrix allow an organization or team to host applications on a central server and deliver them as needed to desktops and laptops using a Citrix or Ericom client. (SEE FIGURE 5.) The experience seems like a regular app to the user but allows you to centrally manage it on a remote server. This lowers administration cost and headaches and lets you more tightly control the environment in which the application operates. Great candidate apps for application publishing are those that heavily leverage databases and have a lot of traffic flowing over the Internet. Using application publishing, you can strike the right balance between user experience and application performance.

Individual users can take advantage of Remote Desktop Services either through Windows Terminal Services or individual Windows XP Professional Workstations using rdesktop on Linux. Rdesktop allows users to connect to Windows Desktops and Servers and have a full Windows desktop experience from a Linux desktop.

In some cases, full OS virtualization might be the best solution for a target app. Virtualization, using a product such as VMWare, allows you to run multiple guest operating systems on top of a single host OS. (SEE FIGURE 6.) The classic scenario is running Windows XP virtualized on top of Linux. This gives you access to the full operating system and all of its features along with the target application. Other open source solutions, such as XEN and Qemu, provide similar functionality to VMWare. (Check out *vmware.com* to download the free vmware server and/or player.)

To choose the best scenario for your environment, ask yourself these questions: Can the application become a Web service? Is the application certified for Wine or CrossOver Office? Can the application be run on an existing Windows desktop and use rdp to connect? Can you use VMPlayer, VMServer or VMWorkstation to host Windows on top of Linux. Can you use application publishing with Citrix or Ericom?

I'm hearing the groundswell now: "Alright, Alright, I get it. SUSE Linux Enterprise Desktop 10 is a platform that meets my office productivity and collaboration requirements. What about this enhanced usability you're touting? What about my iPod and my camera? What about burning CDs and DVDs? What about watching the latest movie trailers?" SUSE Linux Enterprise Desktop 10 can deftly perform all of these functions as well. Bottom line — you won't have to maintain a second PC with that other operating system.

> XGL and Compiz

Yes folks, it's all about the cube. The XGL graphics subsystem and the Compiz composite manager are the biggest things to hit the Linux Desktop — ever. XGL and Compiz bring stunning visual effects and

Figure 5

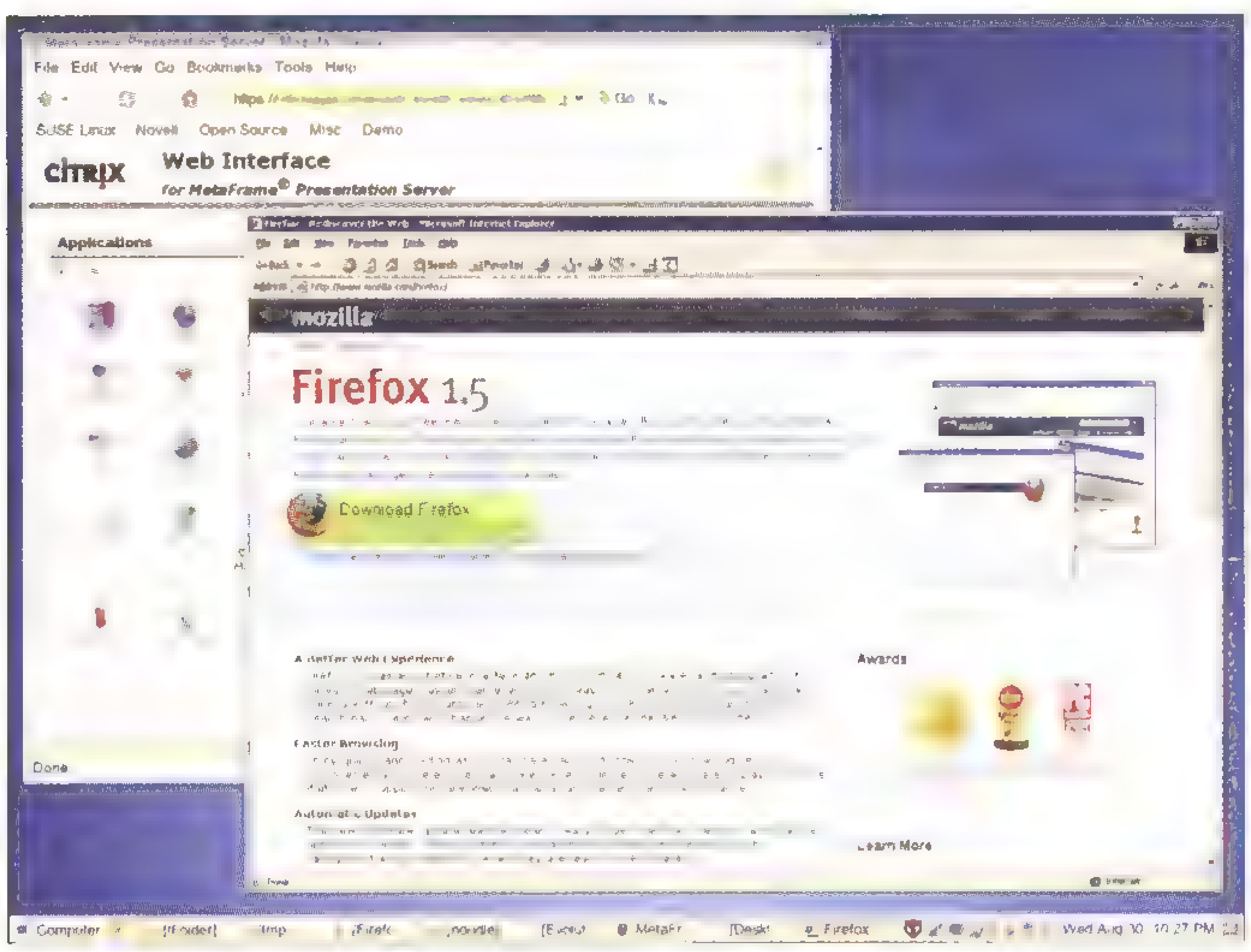
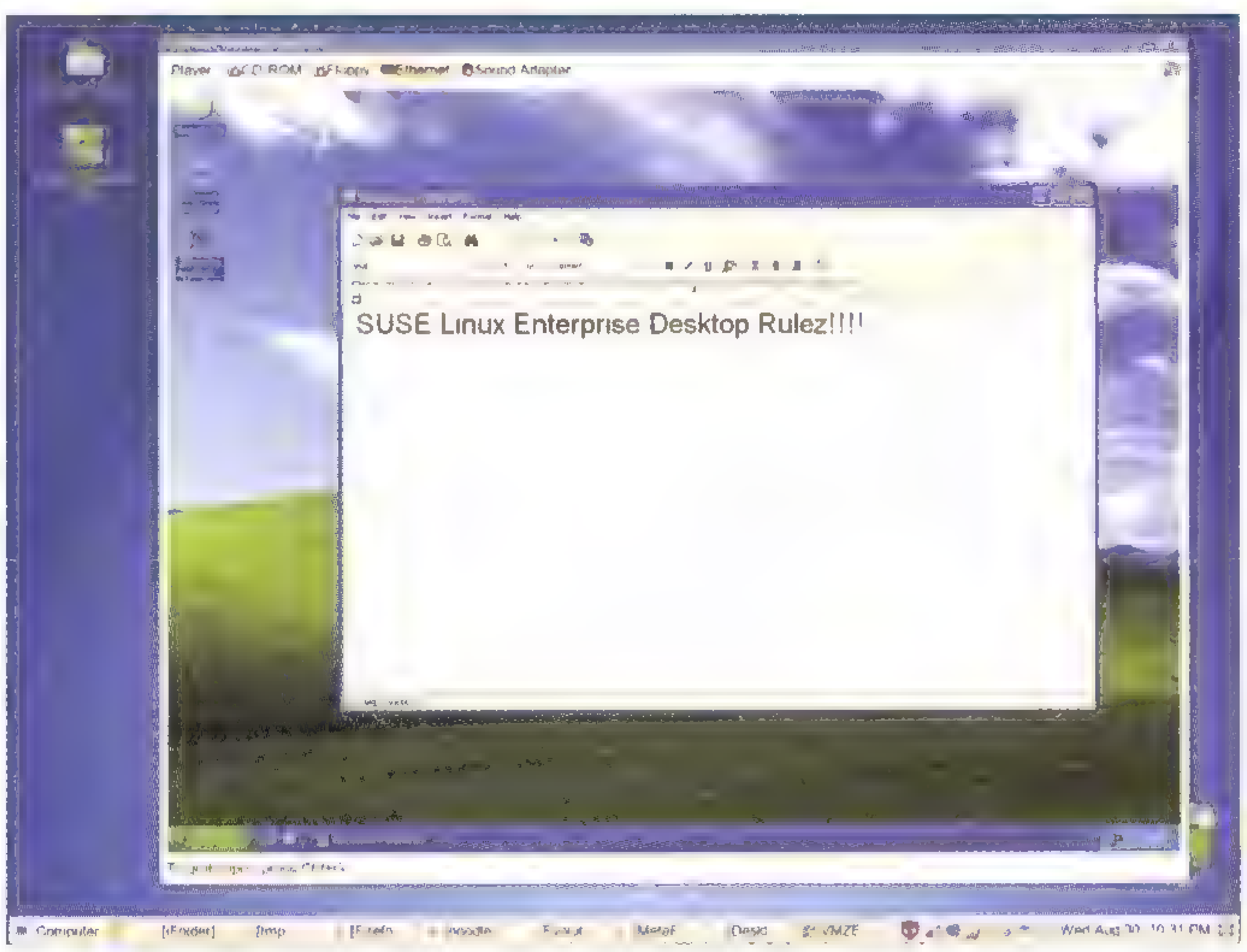


Figure 6



enhanced usability to Linux on the desktop. This includes windows translucency, drop shadows, a true 3D desktop environment and appli cation animations. You have to see it to truly appreciate what it can do.

Several current and legacy graphics cards support XGL and Compiz. (For a list of supported cards visit *opensuse.org/xgl.*) The low end supported graphics card is an ATI, Nvidia or Intel card with 32MB of on-board RAM, which is well below (400 percent) Vista's published specs of 128 MB minimum for full graphical effects.

"That's cool that I can spin my desktop, but what do XGL and Compiz really do for usability and productivity?" From my own expe rience with the XGL/Compiz environment, I've noticed a few things I'd have trouble living without on other desktops:

- **3D Desktop Cube:** The virtual desktop concept has long been around and is not new to Linux. What is new, is the presentation of these desktops in a visual cube. (SEE FIGURE 7.) Now I have more desktop real estate (without requiring another monitor) and can drag applications from one face of the cube to another. This helps me logically separate the tasks I'm working on and allows me to quickly transition between them. Using *Ctrl+Alt left* or *right arrow*, I can spin the cube with a few keystrokes; adding *Shift* moves the focused application to the new face. If I want to see all my desktops, aka all faces of the cube, at once, I can use *Ctrl+Alt Down Arrow* to see an unfolded, movie reel type view of all my desktops.

- **Alt+Tab:** Pressing *Alt+Tab* allows you to quickly move between open applications. That's not new either; but what is new are live thumbnails of my open applications on a pallet in front of my existing desktop. In other words, if a movie is playing in a window, it continues playing in the thumbnail too. As I toggle through the applications, the program that has focus is opaque and the others surrounding it are semi-transparent allowing me to see position and content of the focused window.

- **Scale:** Scale allows me to choose a "hot" corner of the screen that takes all of my open, cluttered apps and tiles them neatly on the current desktop. I've also assigned a hotkey to do this: *Pause*. (SEE FIGURE 8.)

- **Window Translucency:** Being able to make the window in the foreground transparent so I could see the content on the windows behind was just plain cool to begin with; but I found when authoring a document, I used to move windows back and forth to see the content I needed. Now I just make the foreground window semi transparent so I can see the content I need on the window behind. This comes in quite handy when adding something extra to an e mail or OpenOffice document.

To enable and change your XGL/Compiz settings, go to Desktop Effects under Control Center (from the Computer menu in the lower left of the task bar). For the geeks in the house, you have access to extended compiz functionality using gconf editor. For example, one thing you can do is put a background image behind the cube. (For a complete list of effects and keyboard shortcuts, visit *opensuse.org/compiz.*)

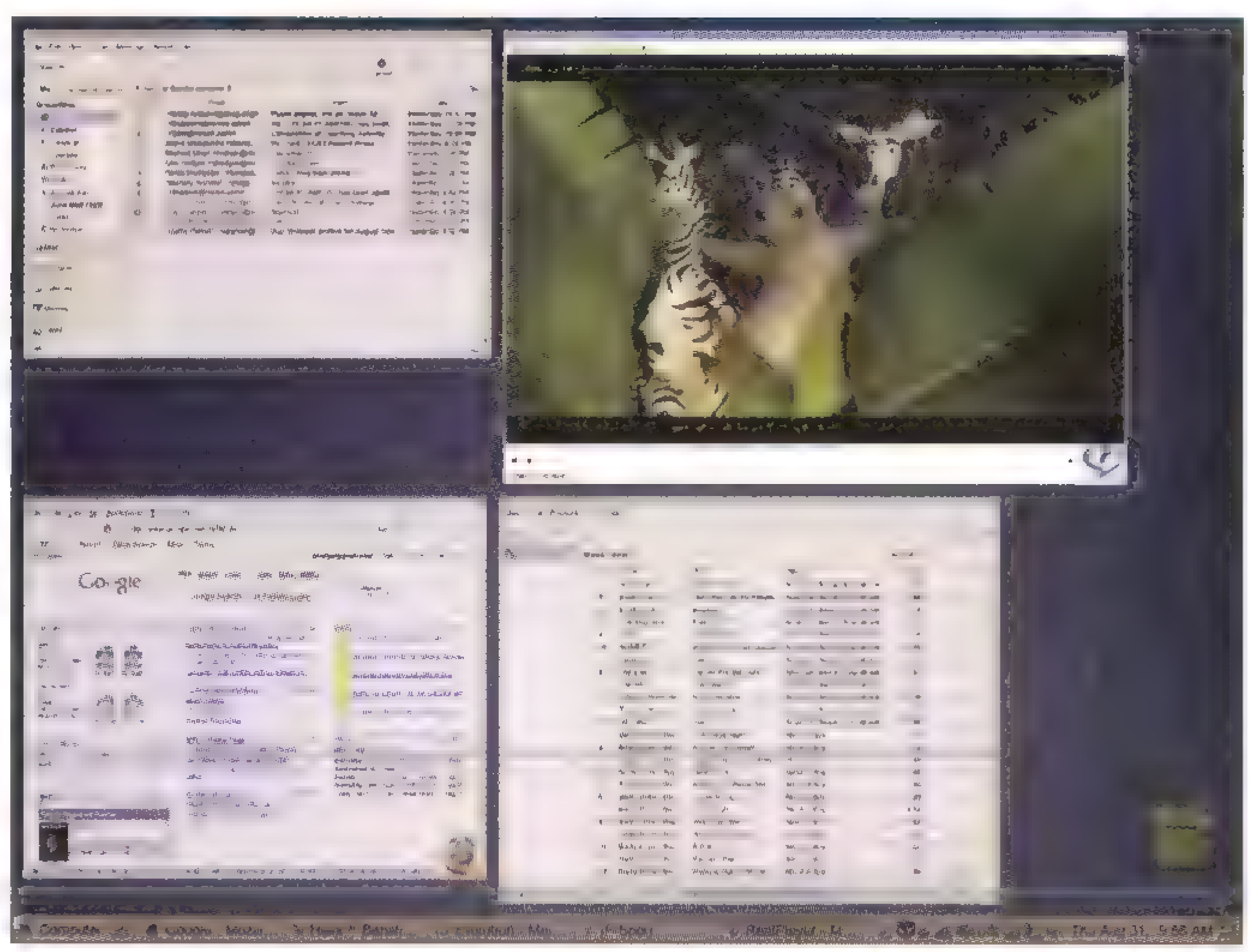
Novell's own David Reveman started the XGL project which is now being leveraged by a host of Linux distributions, including SUSE, Ubuntu and Gentoo. Novell continues to be the number one contributor to the project.

> iPods, Cameras and Pen Drives

In the past, using peripheral devices with Linux was definitely not for the faint of heart. SUSE Linux Enterprise Desktop 10 changes all that. Your devices truly become plug-and-play with a host of fea ture-rich applications, such as Banshee and F-spot, to get the most out of them.

Figure 7 [illegible] desktop real estate [illegible]

Figure 8 [illegible] No problem, just scale your [illegible]



For more information or to have a Novell Representative contact you, please visit *novell.com/ncmconnect.*

> Helix Banshee

Banshee is a full featured audio player and library application. With Banshee, you can import CDs, sync your music playlists to your iPod (or mp3 player), create both audio and MP3 CDs and more. (SEE FIGURE 9.)

What's cool? I plug in my iPod and it's recognized immediately. I drag the tracks from my library and hit synchronize. Simple as that. Banshee also supports a number of plug ins that expand functionality, from integration with Audioscrobbler/Last.fm to a meta data searcher that automatically updates your songs with the correct track information and album art.

> F-spot

Photo Management on a Linux desktop? Yes, it's F-spot. F-spot is a feature-rich, photo management application that leverages the goodness of mono to deliver a very usable and refined experience. Plug in your camera, F spot lights up and asks if you'd like to import your pictures. Again, it's that easy. (SEE FIGURE 10.)

What's cool? You can quickly tag pictures, create slide shows, burn pictures to CDs and export to Flickr and other photo sharing and publishing Web sites.

Again, Novell steps up to the open source plate as the #1 contributor and maintainer of the F spot project.

> Real Helix Player

Real Media does open source? Yes, back in 2002, Real started the Helix project. An effort that included a full featured media player and server. Helix is now at the core of the Linux, Mac and Windows Real Media Players and provides full support for a number of audio and video codecs including Real, MPEG 1, 2 and 4, MP3 and Ogg.

What's Cool? It has full streaming support and integration with Firefox. Visit real.com to check out all the latest movie trailers.

> GNOME CD/DVD Creator and K3b

You want full CD and DVD burning capabilities out of the box? You've got it! SUSE Linux Enterprise Desktop 10 ships with the integrated GNOME CD/DVD Creator and k3b (a CD- and DVD-burning app based on KDE). Both applications provide a full suite of features including creating and burning CD and DVD images, audio CDs and data DVDs.

What's Cool? GNOME CD/DVD Creator is integrated into GNOME Nautilus, GNOME's default visual file browser. When you insert a blank CD, a dialog appears asking if you want to make an Audio CD or a Data CD. If you select Audio, it launches Banshee so you can create CDs based on your playlists. If you select Data, it launches your file browser so you can drag and drop your various files and folders onto the CD layout. Once the disc layout is set, just click Write to Disc and it burns the data to the CD.

> Conclusion

The Open Source Community has delivered yet again and Novell stands ready to deliver the best desktop experience for office users and geeks alike. With the full office suite functionality of OpenOffice.org, users can easily collaborate with peers within and outside the company. With full iPod support in Banshee, you audiophiles won't have to maintain a second PC to enjoy your music. And for the inner nerd in all of us, we can use the enhanced capabilities of a 3D desktop to drive greater productivity in our work day.

With a list price of US$50, SUSE Linux Enterprise Desktop 10 makes all this innovation easily accessible. You can download a 60-day evaluation from *novell.com/products/desktop/eval.html.* Compare that against the cost of the competing operating system and Office suite. Is there really a comparison?

Yes! The Next Generation Desktop OS has arrived and it's packed with open source innovation and enhanced usability; it's ready to be unleashed on your desktop (and laptop). SUSE Linux Enterprise Desktop 10 is ready for you. The question is, are you ready for it? N

Figure 9 *The Helix Banshee audio p[illegible] transfers music to iPods and MP[illegible]*

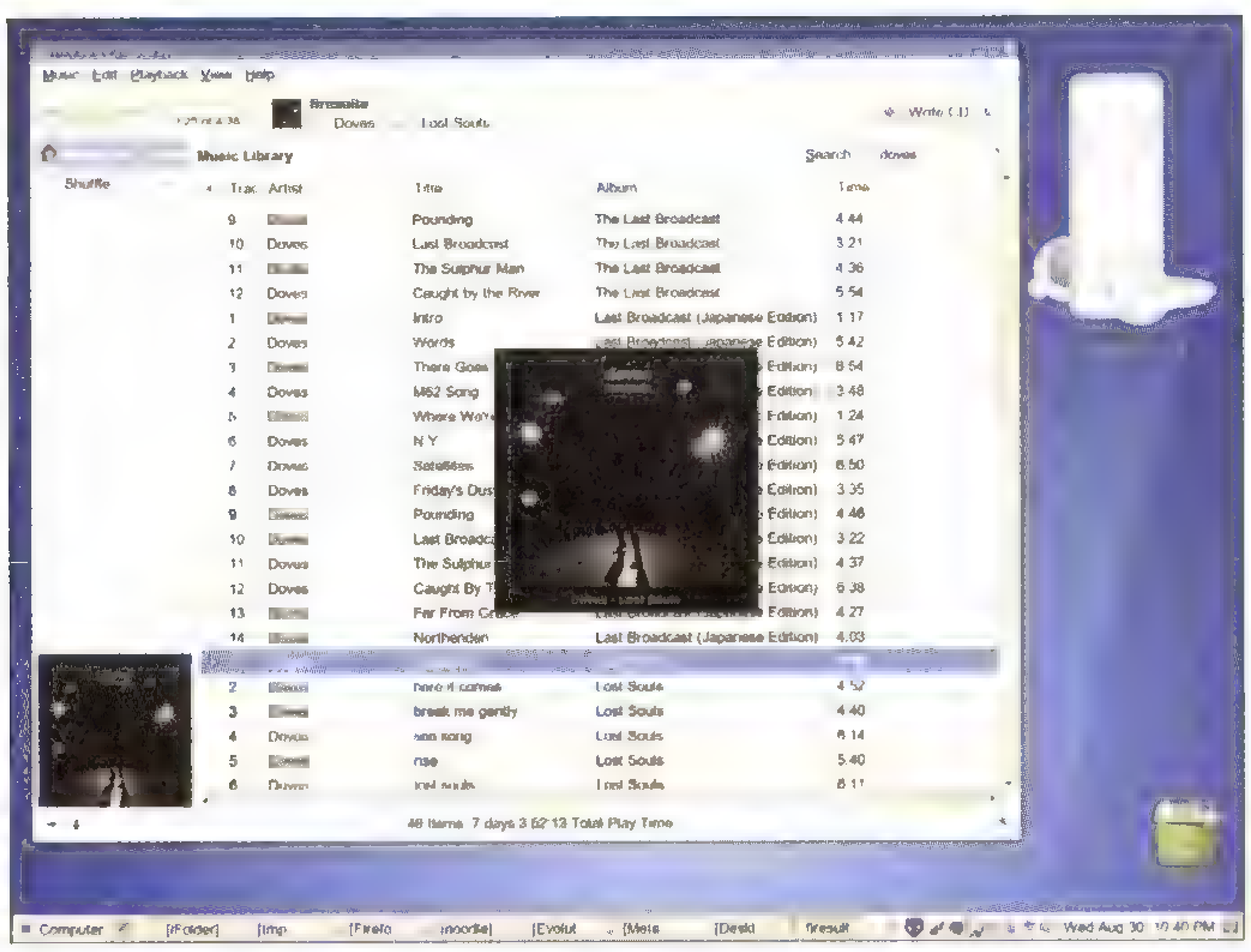
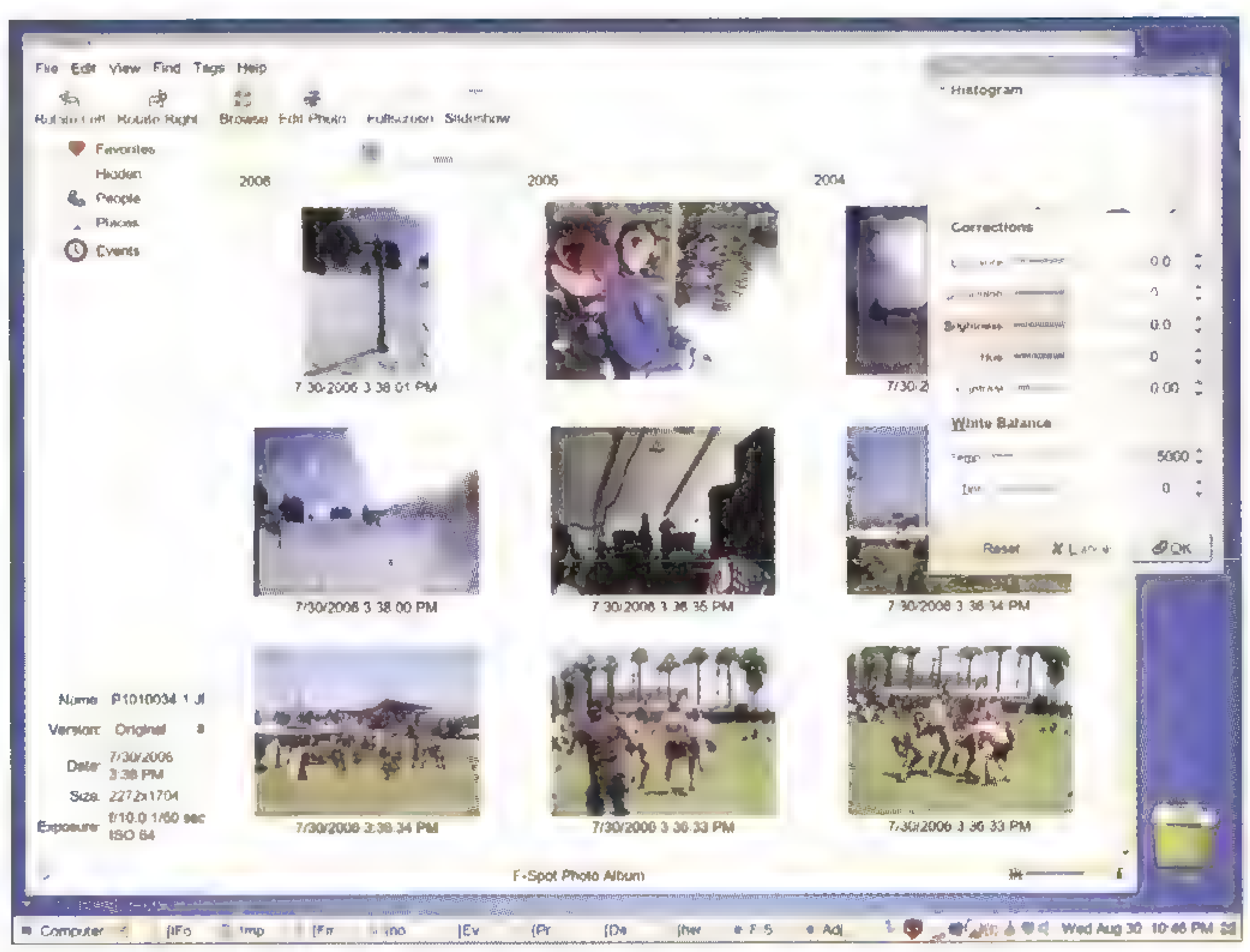


Figure 10 *[illegible] existing collection [illegible] publish them to Web [illegible]*



By Cheryl Williams & Sheryl Kempton

ENJOY THE SENSATION

The Refreshing Feeling of Open Source Apps Used at Novell

During the past few years, Novell has been challenging the proprietary world to see if open source software can really be viable in the enterprise arena. Can open source be used on various platforms, keep my data secure, and will it really save company dollars? As the open source movement gains momentum and legitimacy, in concert with ever increasing economic pressures, Novell has transformed its IT strategy into searching for open source options to solve its internal needs.

This change has come at the same time that Novell has itself become a company that markets both open and proprietary software, terming itself a "mixed source" vendor. Obviously, Novell uses its own open source products internally, but it is using more and more externally developed open source products as well. From an IT perspective, take a look into some of the open source offerings we've deployed and our strategy to see if it might work in your business. We think you'll be pleasantly surprised; and so will your bottom line.

> Introduction of Open Source Code at Novell

One of the first uses of open source was in the data center where the IS&T Web Team experimented using the Apache and Tomcat Web and application servers. The Apache/Tomcat move proved to be highly successful. The extensive Web applications used by Novell, both for external customers *(novell.com)* and internal employees were moved to these open source offerings. Since then, we've successfully deployed many other open source offerings. In this article, we'll give you some helpful hints and things we have tried that you should consider when looking for open source code to solve your business needs.

At about the same time as the Apache/Tomcat transition, the Developer Services group needed a collaboration tool to interact with external developers who develop to Novell platforms. The Developer Services group chose an open source product called Xoops to build the Novell Forge site (*forge.novell.com*). Xoops is a content management system that is extensible, object oriented and written in PHP with a MySQL database.

Since then, Developer Services has transitioned to a product called MediaWiki (fronted by Novell iChain) for additional functionality. The Developer Services site hosts open source projects that are more or less related to Novell and its products. The Forge site allows for project administrators to implement CVS or Subversion (both are open source tools) for the users' source code control based on their preference.

Bugzilla was selected as an add-on option for tracking bugs. The Developer Services group has modified the checksetup.pl script that comes with Bugzilla so users can deploy their own copy of Bugzilla per project if they want to track bugs. Bugzilla is an open source bug tracking system written in Perl and uses MySQL for the database back end.

Internal engineers were clamoring for an easy way to increase productivity by sharing reusable code among groups in the same format used in the open source communities. The Xoops open source package was chosen to create an internal project collaboration application for Novell product development. The result? InnerForge was deployed in 2003.

We've integrated Xoops with other open source tools: Mailman (used for mailing lists) and Subversion or CVS, both of which are used for source code control. Xoops manages the access as well as project information and is implemented in a way that the user can create their own projects, manage their own project data and control user access. With this self managed implementation, it alleviates ongoing support.

Currently, there are 569 InnerForge projects with 1,610 users and all with negligible manual administration. Use of these open source products proved to be highly successful. Fear of dependence on open source was reduced as users began to see the benefits in leveraging available code to solve business needs.

> Novell Transitioned to a Mixed Source Company

As the acceptance of open source was beginning to take hold, Novell was becoming a provider of open source software itself. Novell acquired both Ximian and SUSE Linux in late 2003 and overnight became a distributor of Linux, both on the server and the desktop.

As Novell developers and IT personnel became more familiar with the open source culture, they recognized more opportunities to use open source. Developers, both in the product development groups and in IT, became familiar with the differences between open source and proprietary strategies and actively sought out open source solutions.

Even before the SUSE Linux acquisition, Novell had put in place a plan to begin migrating servers in the data center to Linux. The migration has been moderately paced, mostly planned as servers go out of warranty and are replaced. Statistics show a steady migration during the past four years. As more and more application vendors certify their applications on SUSE Linux, the migration will accelerate.

With these migrations, the data center has seen a decrease in deployment costs for operating systems and an increase stability of server up time. There are several reasons for this. First, Linux is much less expensive to license than HP-UX, Solaris or Windows. Second, Linux rarely requires a reboot.

Novell's migration to the Linux desktop and switching to OpenOffice has been documented in other *Novell Connection* magazine articles:

1 JULY 2004: *novell.com/connectionmagazine/2004/07/tech_talk_1.html*
2 SEPT 2004: *novell.com/connectionmagazine/2004/09/tech_talk_5.html*
3 NOV 2004: *novell.com/connectionmagazine/2004/11/tech_talk_1.html*

When the employee base moved to the OpenOffice office suite and their desktop operating systems to Linux, we were able to cancel our support contract with Microsoft which saved us US$900,000 annually. With the recent release of SUSE Linux Enterprise Desktop 10 in July 2006, Novell employees are even more delighted about Linux desktop computing with the new functionality and the ease of use.

> Learn About Open Source Licensing

Generally speaking, open source software is made available under a license agreement. In contrast to proprietary software, obviously, the source code for open source software is made available under generous and royalty free license terms. Users should understand and respect those license terms. Information on the most frequently used licenses may be found at *opensource.org*.

> Models of Open Source Use/Participation

Of course there are several ways to utilize open source software, as defined below. Novell has operated on all four of these levels. (For more information on these levels, see *The Open Source Game: At What Level Should I Play?*)

1. User only
2. Contributor
3. Decision maker
4. Owner

> How To Select

It's obviously good practice to do careful analysis before the vendor selection in the proprietary world, but also in the open source world. During this analysis, Novell looks at three categories:

- Proprietary tools
- Custom in house development
- Open source tools

Some of the selection criteria considered when making the decisions are:

1. Platform availability
2. Performance and Support
3. Features available and gap analysis of how closely they match the requirements
4. Cost of the tool out of the box
5. How much customization is needed to meet the requirements
6. Time to implement
7. Quality
8. Risks involved
9. Vendor viability
10. Total cost including developer costs, licenses, hardware, maintenance, outsource services, soft savings for users of the tool in time savings, and any additional on going operational costs

Additionally for open source, we look at:

- Size of the community
- Activity of the community
- Reputation
- Other corporate users, their implementations and how closely that matches our implementation plan
- Support and documentation availability

Usually for a proprietary tool, you have the benefit of analysts view points, but for open source in general, you have to research and provide your own analysis. In the long run, it pays to do your homework up front before making the decision.

A good rule of thumb for finding open source options is looking at some of the established open source community sites such as *sourceforge.net*, *freshmeat.net* (Keep in mind for this site, it is more untried and untested code where you can find the latest bleeding edge open source code.), *tigris.org* and any other big, open source repository.

Figure 1 [illegible]

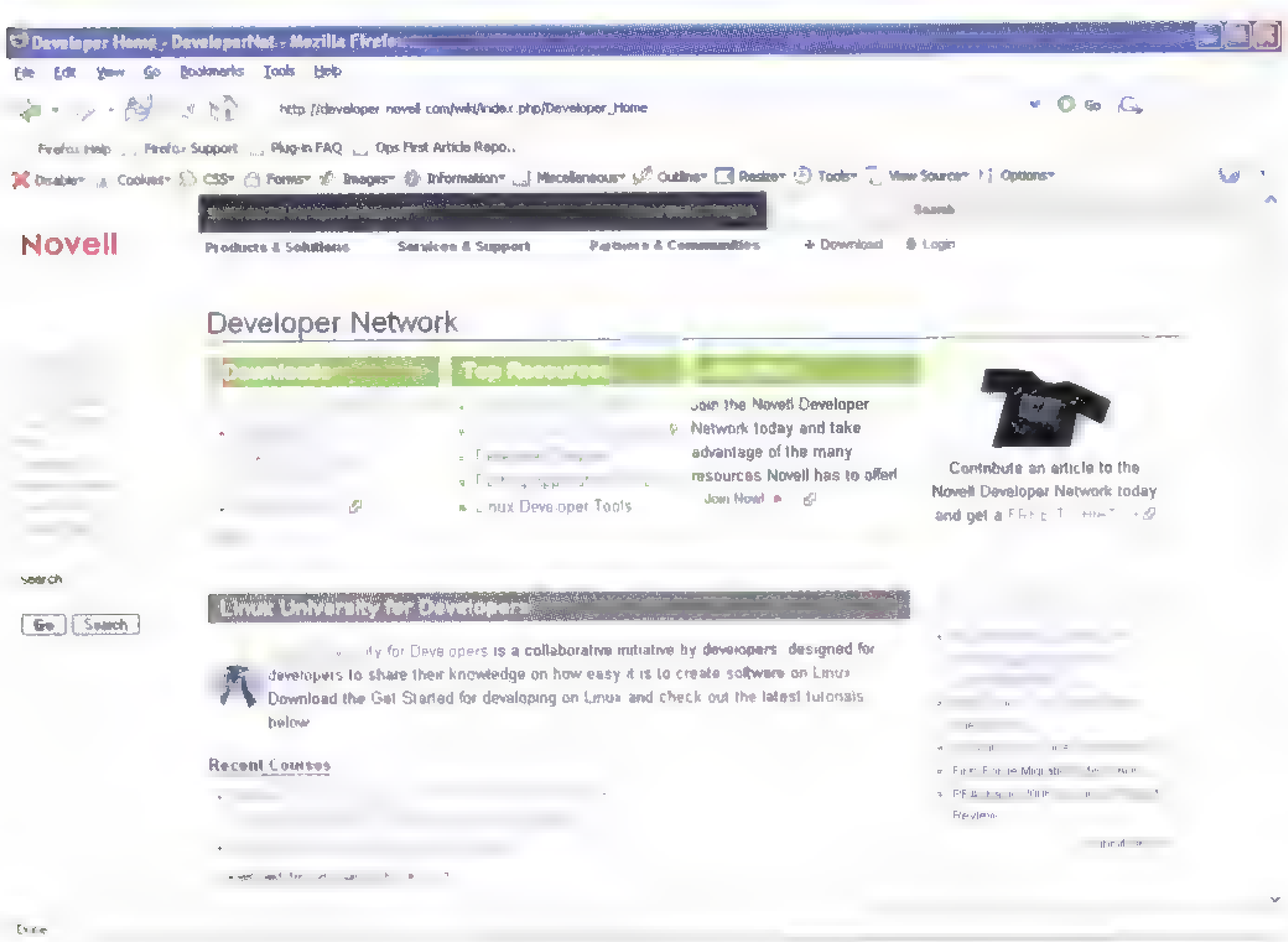
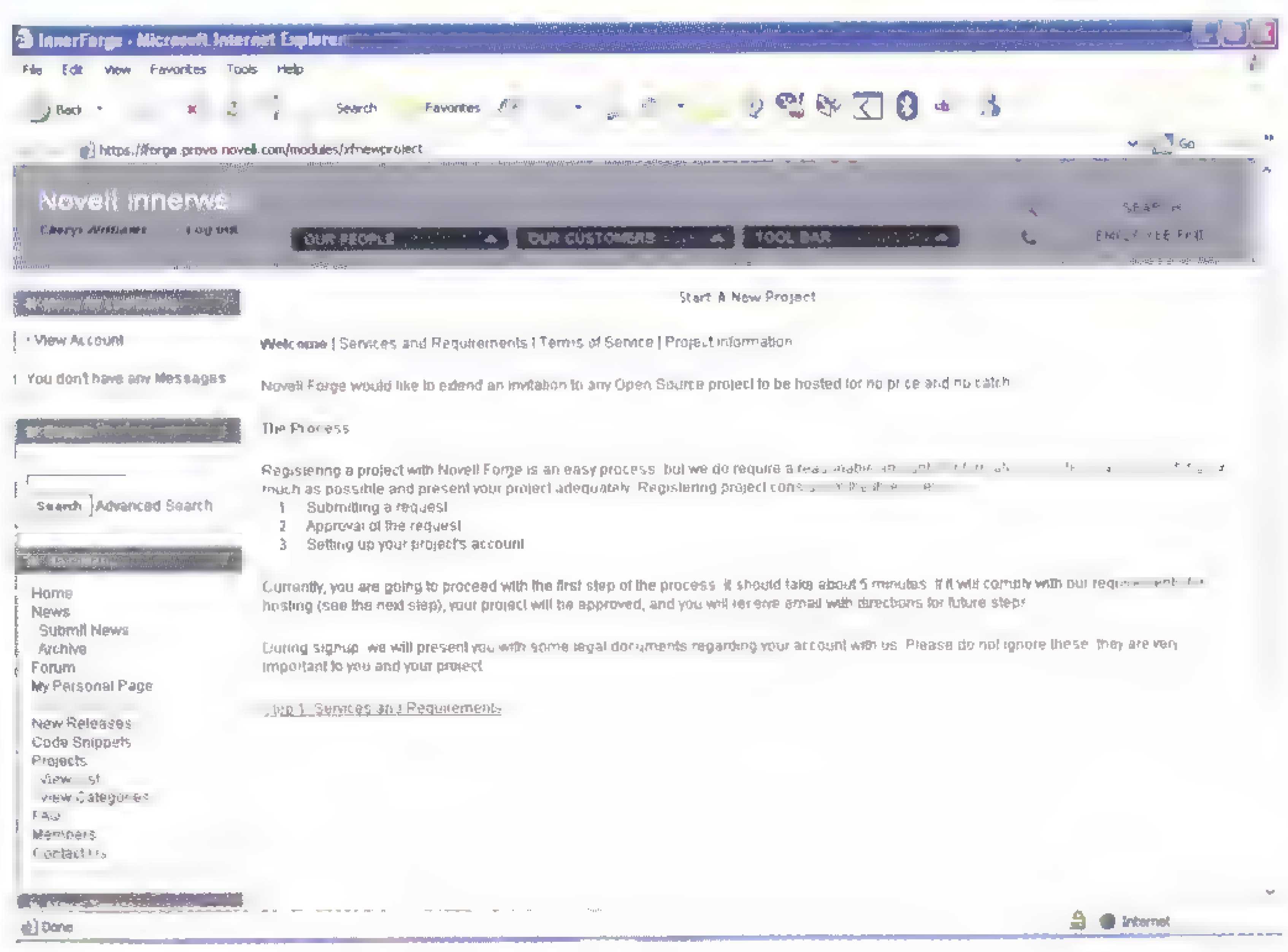


Figure 2 [illegible]



> Examples of Mixed Source Success

One of the obvious places for Novell to use open source was in our data center. Novell has a unique set of IT infrastructure products that have made our integrations of open source software work smoothly. For example, Novell is migrating source code version control systems to an open source tool called Subversion. Our deployment of Subversion uses Apache mod_auth_ldap and Novell eDirectory and LDAP for authentication and authorization. We also use InnerForge (Xoops) for managing access control. The integrations are relatively easy to implement because of the open standards approach used by Novell products and by most open source offerings.

In our Subversion implementation, we use InnerForge (based on Xoops) to manage the Subversion project creations and user access to the code. This implementation relies on Novell eDirectory and LDAP for the user account information. This has been very successful and does not require involvement or on-going support from our developer team. Users around the globe can provision new projects and user access without delay.

Subversion is a great tool and has significantly less hardware and end user support requirements than proprietary counterparts while still providing the same quality of source code control. We deployed Subversion on 15 July 2005 and to date we have 269 repositories active. The repositories are currently at 35 GB and the server has been running nonstop, except for a kernel upgrade on 04/08/06. Total accesses have been almost 10 million (9,875,246) with total traffic at more than 20 GB. We usually average 1.2 requests/sec at 2,732 Bytes/second or 2,271 Bytes/request. The servers are located in the data center in Provo, Utah, and are accessed from our offices around the world.

Another infrastructure open source tool used at Novell is the JBoss messaging system for service-oriented architecture.

A popular open source database is MySQL. We are currently running MySQL on 21 servers with more than 75 Web applications using it as the back-end database. We have instances of 4.0, 4.1 and 5.0 in production currently. We have used MySQL since 2001 and our top six applications currently have over 21.4 million records. With the later versions, there are significant improvements well suited for large enterprise applications. If you look at the per processor cost model of some of the competing proprietary databases, you can easily see the incredible savings to your bottom line.

> Effect of Open Source on Your IT Organization

Using open source software requires traditional developers to learn new skills. Open source projects utilize a multiplicity of development languages and scripts that might or might not be the same as existing applications. It's not unusual to find open source projects with cutting edge, unproved technologies. Developers frequently find themselves needing to learn a new programming skill. Often it's not the developer's language of choice, so the developer must be flexible, open-minded and willing to learn new skills.

In addition to new programming skills, developers must learn how to use open source infrastructure and databases. Sometimes the open source offerings may not be as mature in their feature sets as the proprietary software they supplant. Developers may feel like they are stepping backwards, as they begin to use the open source products; however, large, active communities make up ground very quickly and often surpass the proprietary competition.

The Open Source Game: At What Level Should I Play?

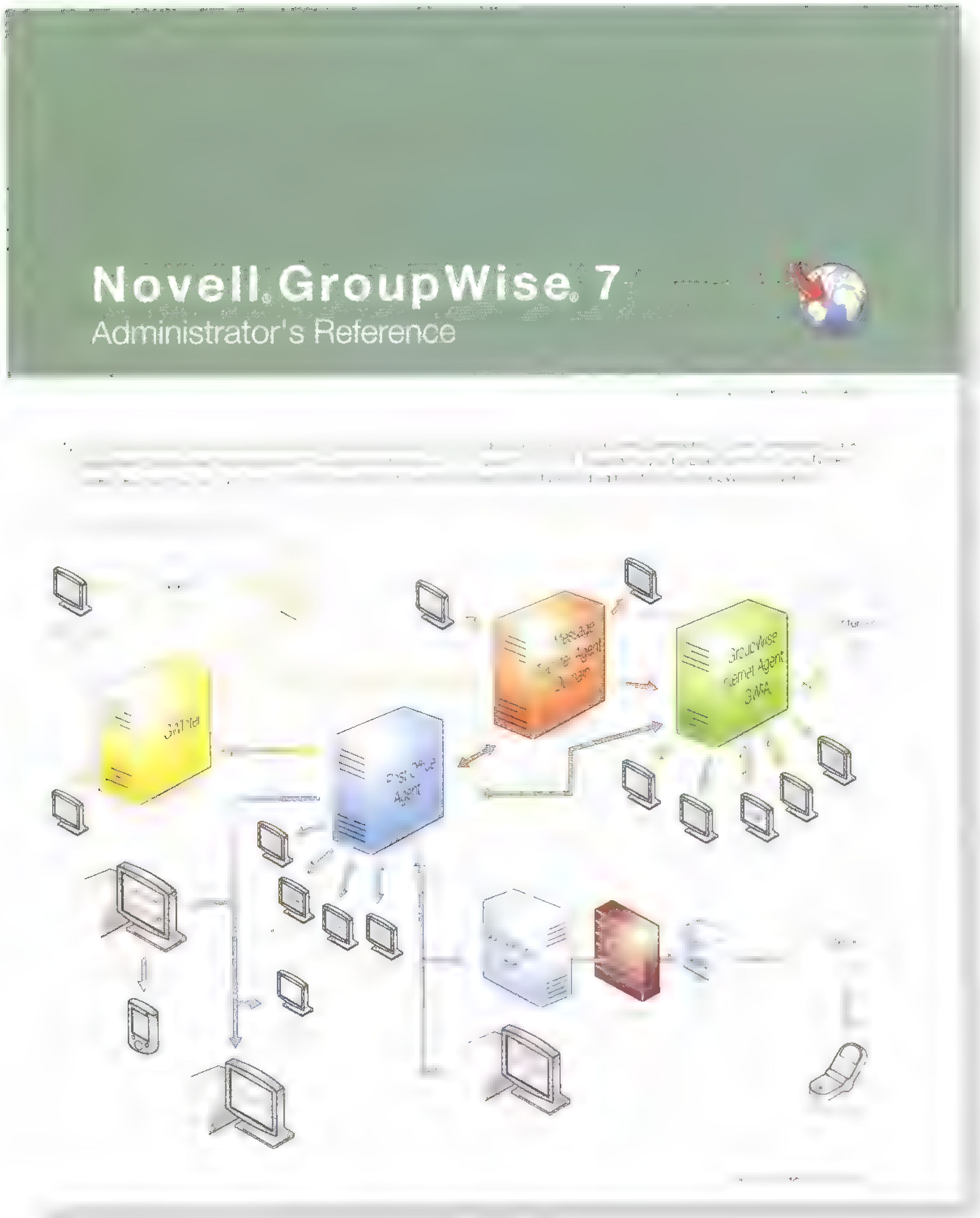
User Only A company can download the open source code "as-is" for use with little or no involvement in the project community. This is a great option for developer tools or many personally used tools. Likewise, a company can download open source software for deployment "as is" or can customize it for its own use.

Although often not "show-stoppers," there are certain drawbacks to consider when customizing open source software and deploying it within your company. Customizations you've made to the software can make it a bit harder, though not impossible, to upgrade to new releases; and the company might find itself relatively alone, responsible for support and new development. The initial advantage is that the first "purchase" is free. If you can't use the software without customizations, then possibly there are few ongoing advantages over in-house development except the initial project acceleration.

Contributor A company can download, customize and contribute back to the community. The company developers responsible for the application actively participate in the community and lobby for the customizations that are needed. The company minimizes its own customizations with the intent that they will always be able to accept a new release of the software without breaking what they already have. The company continues to benefit from the community's work throughout the life of the community. This option incurs an ongoing expense; however, the ROI tends to be worth the investment.

Decision-maker The company can play an even bigger role in the community by making significant contributions and becoming part of the controlling body of the community. This means that the company-needed enhancements and customizations are more likely to be considered for incorporation into the software. This requires a resource commitment from the company, and a proven track record in the community so the developers are trusted to become administrators or reviewers for the project.

Owner The company can leverage the open source momentum by starting an open source project, when none already exists, for something the company needs. This requires significant initial resource commitment. The project must have "appeal," and must be nurtured to a point of initial usefulness to get external adoption and support. Another key element is to get the project visibility within the community such as mozilla.org or similar sites. The company must continue to invest enough to make progress and to continue to attract contributors until the project is stable enough with a big enough community to help maintain it.



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(Psst . . . it's free.)

Get your free* GroupWise 7 Administrator's Reference Quick Start Card at www.BrainStormInc.com/GW7admin

*Some restrictions apply. Allow one Quick Start Card per GroupWise Administrator. You may also get your GroupWise 7 Administrator's Reference Quick Start Card by contacting BrainStorm, Inc. at 1.801.229.1337 or writing us at P.O. Box 495, Orem, UT 84059.

N. End User TRAINING PARTNER Novell.

BRAINSTORM INC.

Developers must also become accustomed to participating in a culture in which there is constant scrutiny of their design and coding practices. In the open source world, fame and "stardom" are possible for "hackers" who impress the community with their ingenuity, innovation and rock-solid quality. At the same time, there is also a possibility of public loss of respect for those whose coding practices are not always the best. There is public pressure to code in quality as well as to thoroughly understand user needs. Many developers learn to thrive in this dynamic atmosphere.

Open source software also demands a different development methodology than the traditional waterfall model. Open source projects, in general, have much shorter periods of time between releases. They usually follow an iterative methodology. Open source projects usually depend on the user community to do much of the testing, rather than a dedicated Q/A testing team. This requires a change in the user and producer relationship. The user must understand that he is part of the test team, and that there are bugs in the candidate release. The user must be more tolerant of imperfections and view it at his duty to "wring out" the release candidate, rather than expect someone else to find all the bugs.

On large global tools like Bugzilla, Testopia or OpenOffice, we have deployed the new open source tool while leaving the existing tool(s) in place during the migration process. This allowed users to become familiar with the new tools and realign their processes to fit the new implementation.

> In Summary

There are many advantages to choosing an open source option. In short, here are some of the pros and cons we have found that you should consider:

Pros:

1. leverage more resources (not limited to resources within your company)
2. low cost
3. responsive, agile
4. simplicity
5. ability to customize code to meet your specific requirements without consulting fees
6. no upgrade or yearly maintenance costs
7. intangibles such as sense of contributing to the betterment of society

Cons:

1. possible lack of support
2. general lack of documentation
3. less ability to judge viability of community v. company
4. not on analyst's radar for independent evaluations
5. generally not as mature yet
6. language and infrastructure consistency

Here are a few questions to ask yourself when considering an open source alternative:

1. How far out on the open source limb am I willing to go?
2. Is open source more vulnerable when it comes to potential security issues?
3. Will the community thrive or disappear? Will I be left as the only user?
4. Is there possible developer "contamination?"
5. Should I look at "packagers" of open source, such as Novell, (lower cost than proprietary) for greater confidence in their longevity?

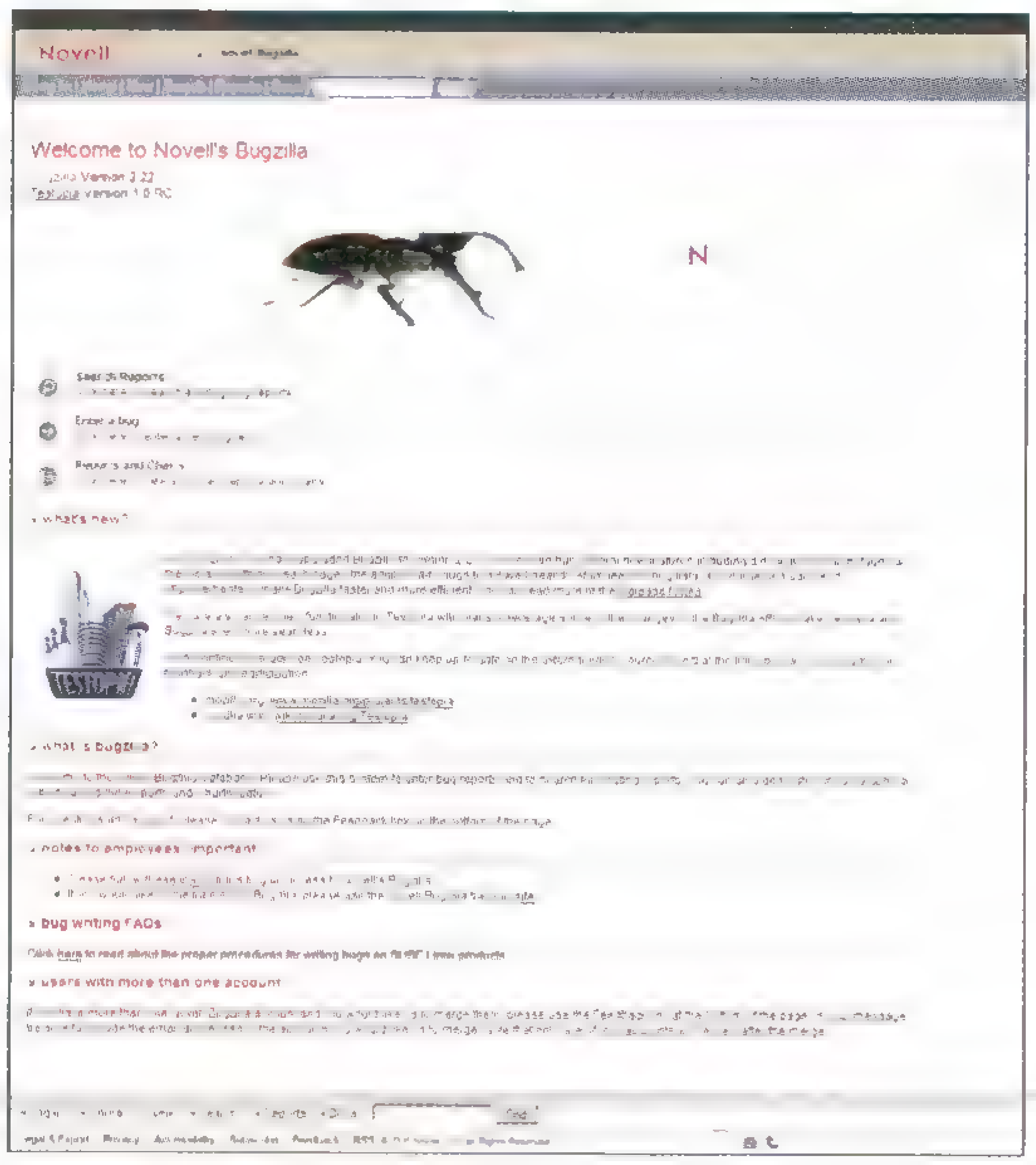
For Novell, use of open source software has provided inexpensive software that fits Novell's needs very well. We use open source offerings on various platforms with great success and contribute at all levels in the open source community. With the implementation of Novell iChain and eDirectory products, we have been also able to provide the high security user based access Novell requires for diverse users.

Many of these tools allowe us to get out from under huge annual support and maintenance contracts and better plan staffing based on the tool usage. In most caseswe reduced the cost of maintenance, support and customization.

Also, in general, hardware choices prove to be much less expensive than what is required for many proprietary solutions. Thus Novell has benefited not only in terms of significant reduced costs, but also in terms of flexibility and agility in meeting internal needs. Novell would answer a resounding *"YES! You can use open source software on various platforms, save a significant amount of company dollars and keep your data safe and secure."* We have been doing all of these for several years now and have demonstrated that you can use open source to run an enterprise business with great success.

Future articles in this series will use case studies to show, in detail, how we planned and implemented some of our world-wide deployments, what is needed for successful implementations and, viable open source tools for developers. Until then, check out *So What Does Novell Use?* to see many of the successful open source offerings Novell is using internally and where you can find more information about them. Just as before, you might not only be pleasantly surprised at the list, but you'll probably also be amazed. **N**

Figure 3 Novell uses Bugzilla for its corporate bug tracking system. We installed it in the data center in Provo, Utah; employees and users access it from around the world. Look for an article in next month's Novell Connection or the



For more information or to have a Novell Representative contact you, please visit novell.com/ncmconnect.

I know what you're thinking. Bell bottoms were definitely cool the first time around, but their re release at the beginning of the century was a fashion bust. You may even have a similar experience with that favorite band of yours. Their first album was beyond compare and then along came album number two. They changed their sound, got a new bass player and the whole experience put you off. So sure, OpenOffice.org 1.0 was a good office suite, but based on your experience, 2.0 is going to resonate about as well as shoulder pads after 1987. Well, you'll be surprised.

OpenOffice.org is the most popular open source office suite available. According to Wikipedia, "OpenOffice.org has secured 14 percent of the large enterprise market as of 2004. The OpenOffice.org Web site reports more than 61 million downloads."

Equipped with all the usual components of an office suite, OpenOffice.org provides open source alternatives for word processing, spreadsheets, HTML editing, presentation and drawing tools, and a database application. OpenOffice.org is translated into more than 30 languages so if it's not available in your language now it's likely to be very soon. OpenOffice is also platform agnostic, running on all major computing platforms including Microsoft Windows, Mac OS X, Linux and Solaris.

> Looking Back at OpenOffice.org 1.0: OOo Yeah!

One of the most convenient features of OpenOffice.org 1.0 was the integrated export to PDF which allowed you to save documents in a standard, read only format accessible with any operating system. That functionality is obviously much enhanced in version 2.

You didn't have to worry about training and ramp up time gouging your business productivity. OpenOffice is intuitive with a familiar look and feel to other competitive products. Any employee or individual accustomed to other office suites will find exactly what they are looking for exactly where they look for it.

If you've still got doubts, here's an important fact: OpenOffice.org reads all major file formats from other office products and can coexist with other suites. Long gone are the days of keeping a dark closet full of antiquated machines just so you can read your old, dusty files. If you have a 25 year old document, you can open it up like it was created yesterday.

> OpenOffice.org 2.0: OOo Baby!

Even though OpenOffice.org was a smash hit with version 1, version 2 is even better with several enhancements and new features. Among those new and enhanced features are:

- an improved and extensively customizable interface with new multipane views, menus, floating toolbars and native desktop integration
- a cross platform database application comparable to Access that allows you to create self contained, portable and cross platform database applications that are immediately portable to users on any operating system supported by the OpenOffice.org office suite.
- complete XForms support so it is now easier to create, edit and use forms inside documents. Using XForms, documents can be more interactive with links between them and data. (XForms is the standard defined by the W3C for Web forms.)
- support for up to 65,536 rows of data in a spreadsheet
- major improvements to the spreadsheet and database DataPilot feature which enables advanced analysis of data
- native installers so you can install OpenOffice using .MSI, .CAB or .RPM files depending on your operating system
- digital signatures so you use standard digital certificates
- much more

Linus Torvalds, author of the Linux kernel said, "Given enough eyeballs, all bugs are shallow." That said, hundreds of thousands of users have participated in the beta testing of version 2, flushing out defects and validating it as an enterprise quality piece of software.

As for the PDF export enhancements, version 2 now gives users more control over the quality and size of the PDFs that are generated. It also includes support for links, indexes, forms, thumbnails and presentation transition effects.

Apart from all the other new enhancements in version 2 is the adoption of a new open standard format that will help users around the world communicate better for years to come. OpenOffice.org 2.0 is the first office suite to incorporate the new OASIS OpenDocument format (ODF) which is a set of XML based standards for document creation. Let me explain.

OASIS (Organization for the Advancement of Structured Information Standards) is a not for profit, international consortium that drives the development, convergence and adoption of e business standards. Distinguished by transparent governance and operating procedures, OASIS expressly promotes industry consensus and unites disparate efforts. Founded in 1993, OASIS has more than 5,000 participants representing more than 600 organizations and individual members in 100 countries.

OpenDocument Format (ODF) This consortium of thirty five

by Tonia Conger

UP:GRADED

OpenOffice.org 2.0: This Sequel Is Better Than the Original And You'll Never Go Back.

Open Source Tools Used at Novell

Product	Category	Novell's Role	Where can I get the tool
AppArmor	security tool	Owner	en.opensuse org/Apparmor
Evolution	integrated mail, address book, and calendaring	Owner	gnome.org/projects/evolution
Mono	software development - Linux	Owner	mono-project.com/Main_Page
SUSE Linux Enterprise Server	server operating system	Owner	novell.com/linux
SUSE Linux Enterprise Desktop	desktop – operating system and services	Owner	novell.com/linux
Testopia 1.0	test case management tool	Owner	mozilla.org/projects/testopia
YaST	OS setup and configuration tool	Owner	novell.com/yast
Apache 4.1.31	HTTP server	Contributor	tomcat.apache org/index.html
Banshee	music	Contributor	banshee-project.org/Main_Page
Beagle	search tool	Contributor	beagle-project.org/Main_Page
Compiz	visual effects	Contributor	en.opensuse.org/compiz
F-Spot	photo management	Contributor	f-spot.org/Main_Page
Firefox	Web browser	Contributor	mozilla.com/firefox
GNOME	desktop environment	Contributor	gnome.org
Helix	media	Contributor	https://helixcommunity.org
MySQL	database	Contributor	mysql.com
OpenOffice.org 2.0	office suite	Contributor	openoffice org
openSSH	secure sockets	Contributor	openssh.com
openSSL	secure shell	Contributor	openssl.org
Subversion 1.3.0	source code control - CVS on steroids, rapidly replacing CVS	Contributor	subversion.tigris.org
Tomcat 4.1.31	Java engine	Contributor	tomcat.apache.org/index.html
Xgl	intricate graphical operations	Contributor	en.opensuse.org/Xgl
Bugzilla 2.22	defect tracking system *(This is customized heavily with internal integrations into other systems; however, it works great out of the box.)*	Decision-maker	bugzilla.org
Big Brother	network services monitoring	User	bb4.org
Bluefish	Web authoring	User	bluefish.openoffice.nl/index.html
CVS 1.11.1p1-16.n1	source code control - concurrent versions system	User	nongnu.org/cvs
Dojo 0.3	Javascript toolkit	User	dojotoolkit.org
Eclipse 3.1	Integrated Development Environment and various plugins	User	eclipse.org
Gaim 1.5.0	multiprotocol instant messaging (IM) client	User	gaim.sourceforge.net
GCC	programming language compiler	User	gcc.gnu.org
Gimp	image editing	User	gimp.org
Google AJAX toolkits	Web toolkit for building Java apps	User	code google.com/webtoolkit
JBoss jms 4.0.3	SOA messaging and application server	User	jboss.org
Mailman 2.1.3	list server software	User	gnu.org/software/mailman/index.html
MediaWiki 1.5 8	most widely used Wiki engine	User	mediawiki.org/wiki/MediaWiki
Nvu	Web authoring	User	nvu.com/index.php
OpenLDAP	platform-independent LDAP protocol	User	openldap.org
Perl 5.8.3	programming language	User	dev.perl.org
PHP 4 3 4	programming language	User	php.net
Plone 2.1.3	content management system	User	plone.org
PostgreSQL	database	User	postgresql.org
Prototype	Javascript framework	User	prototype.conio.net
Python	programming language	User	python.org
Quanta+	Web authoring	User	quanta.kdewebdev.org
Reiser	file system	User	namesys.com
Rsync	incremental file and directory transfer and synchronizer	User	rsync.samba.org
Samba	file and print services	User	samba.org
Saxon 8.7	XML parser	User	saxon.sourceforge.net
Squirrel 2.2	SQL front end	User	squirrel-sql.sourceforge.net
Synergy 1.3.1	mouse and keyboard sharing	User	synergy2.sourceforge.net
Twiki 20040902	Wiki engine that allows restricted subWebs	User	twiki.org
ViewVC 1.0-dev (pre-release)	browser-based view into MySQL database tables	User	yolinux.com/TUTORIALS/VNC.html
VNC	remote desktop	User	
WireShark (previously Ethereal)	network protocol analyzer	User	wireshark.org
WordPress 2.0.2	blog engine	User	wordpress.org
Xoops 1.0 RC 3.0 5	project collaboration	User	xoops.org

The OpenOffice.org project mission statement reads: "To create, as a community, the leading international office suite that will run on all major platforms and provide access to all functionality and data through open-component based APIs and an XML-based file format."

vendors and individuals (including IBM, Sun, SAP, Oracle, Novell and Adobe) got together and decided to standardize basic office suite capabilities including saving and exchanging the office documents you know and love like memos, reports, books, spreadsheets, databases, charts and presentations. This standard, called OpenDocument Format (ODF), is publicly accessible and can be implemented – royalty free – into any open source or closed proprietary product.

ODF was created specifically to provide an open alternative to proprietary document formats so organizations such as yours could avoid vendor lock in. It also enables document portability which lets you open documents created with different office suites on different platforms. Perhaps the most significant business benefit ODF offers is the preservation of older documents. Given a document's lifecycle can last years and years, there's a risk that very old documents are unreadable by newer office suite versions; however, since each document format is based on the same set of standards, they can be preserved, opened and edited indefinitely.

Though many office suite applications support the OpenDocument Format, not all have agreed to play. Regardless, in a research document dated May 12, 2006, Gartner predicts that by 2010, ODF document exchange will be required by 50 percent of government and 20 percent of commercial organizations.

"Productivity applications such as OpenOffice 2.0, Sun Microsystems' StarOffice 8 and IBM's Workplace support OpenDocument. Microsoft, however, is not supporting OpenDocument and instead is seeking ISO standardization for its own Office Open XML formats."
Dawn Kawamoto, *CNET News.com*

ISO/IEC Good news came May 3, 2006 when OpenDocument Format was ratified by members of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). While ISO defines itself as a nongovernmental organization (NGO), its ability to set standards which often become law through treaties or national standards makes it more powerful than most NGOs, and in practice, it acts as a consortium with strong links to governments. Participants include several major corporations and at least one standards body from each member country.

Some ISO standards of interest include the following:

- ISO 6709: Standard representation of latitude, longitude and altitude for geographic point locations
- ISO 9660: CD ROM file system aimed at supporting different computer operating systems
- ISO 7001: Public Information Symbols standardized the icons for locating toilets, car parking and information throughout the world.

I'm thinking of suggesting an ISO standard myself; one that eliminates big pointy collars, anything made of polyester and any band reunion that doesn't include all the original band members.

"With adoption of ODF by ISO/IEC, software that implements the standard will now become more attractive to those European and other government purchasers for whom global adoption by ISO/IEC is either desirable or required."
Dawn Kawamoto, *CNET News.com*

So, OpenOffice.org aims to provide the same functionality as Microsoft Office – emulating its look and functionality where suit

OpenOffice.org Easter Eggs

1. In Calc, enter =Game("StarWars") into any cell and get a playable version of Space Invaders
2. In Calc, enter =Game(A1:C3;"TicTacToe") into cell A4 for a playable version of the game

> Exchanging documents with others that still use Microsoft Office becomes seamless. OpenOffice.org has even been able to open files of older versions of Microsoft Office and damaged files that newer versions of Microsoft Office itself even couldn't open.

OpenOffice.org Programs

Writer

Similar to Microsoft Word, Writer is the word processor available with OpenOffice.org. With Writer, your end users can author documents, export them to PDF with no additional software, and can also edit Web pages using Writer as a WYSIWYG HTML editor. Familiar functions such as tracking changes, document formatting and mail merge is essentially the same experience.

Calc

The spreadsheet app, which is similar in features to Microsoft Excel, is Calc. It provides several features not present in Excel including a system which automatically defines series for graphing, based on the layout of the user's data. Calc now also offers Visual Basic Macros and pivot table support for a truly seamless spreadsheet experience. Similar to Writer, Calc can save as a PDF file, allowing data to be reviewed by different individuals within your organization without the threat of unauthorized edits.

Impress

A presentation program with a similar experience to Microsoft PowerPoint. Impress has the ability to create PDF files as well as export presentations to Macromedia Flash (SWF) files which allows you to run them on any computer with the Flash player installed. If your end users are working on a presentation, Impress has readily available templates you can download from the Internet.

Base

Base is new to OpenOffice.org 2.0. A database program similar to Microsoft Access, Base enables your end users to create and edit databases and build forms and reports for analyzing your data. Similar to Access, Base works as a front-end to a number of different database systems, including Access databases (JET), ODBC data sources and MySQL/PostgreSQL.

Draw

Comparable in features to CorelDRAW, Draw is a vector graphics editor featuring versatile "connectors" between shapes, which are available in a range of line styles and facilitate building flowcharts and other drawings. End users can use Draw to create graphics that visually define your enterprise products/services.

Math

Like Microsoft Equation Editor, Math is a tool for creating and editing mathematical formulae. These Formulae can be embedded within other OpenOffice.org documents, such as those created by Writer or Calc. With Math, your end users can create documents such as invoices, save them to PDF and send them electronically to your clients.

Macro Reader

Macro Reader is used to automate tasks by recording user actions and replay them later. Similar to Microsoft Visual Basic for Applications (VBA), Macro Recorder is available in both Writer and Calc. In addition to being based on StarOffice Basic, OpenOffice.org 2.0 Novell Edition supports running Microsoft VBA macros.

Figure 1 [illegible] Auto complete, auto-format and real-time [illegible] the hardest task. Writer is powerful enough to [illegible] multi-column newsletters and brochures [illegible]

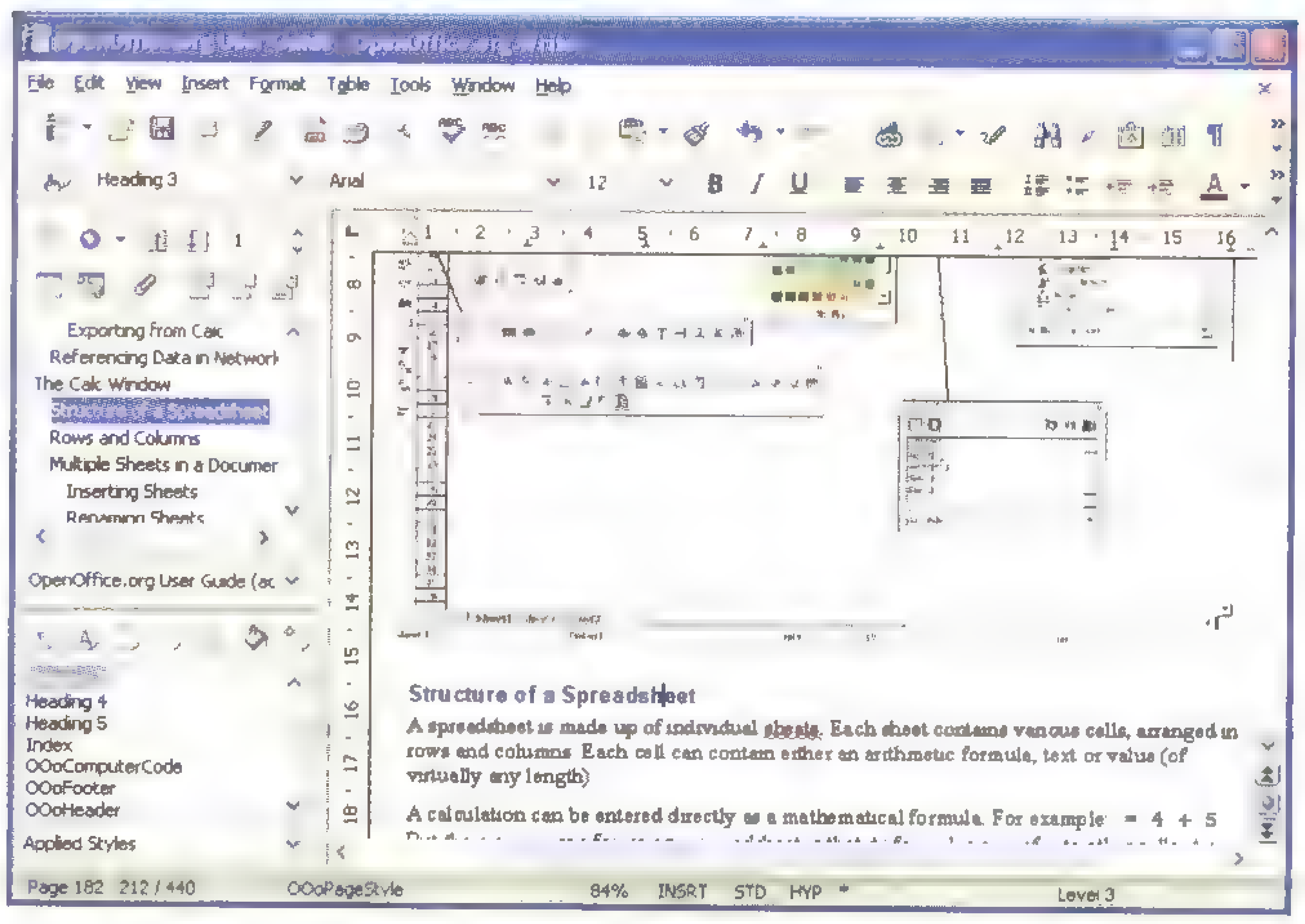
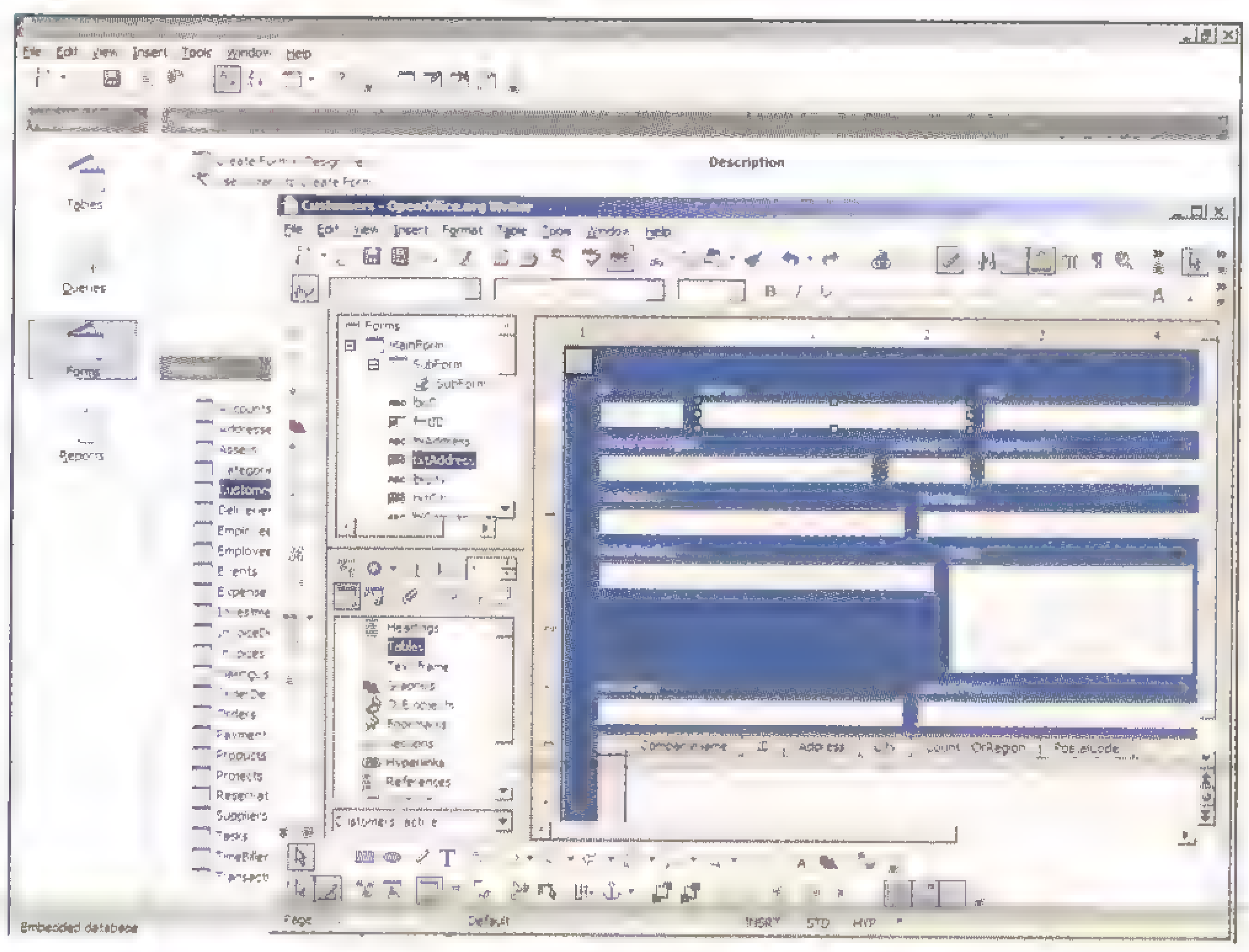


Figure 2 [illegible]



For more information or to have a Novell Representative contact you, please visit novell.com/ncmconnect.

able. It can also read and write most of the file formats found in Microsoft Office and many other applications. The ability to read and write Microsoft Office documents is an essential feature of the suite for many users because they exchange documents with organizations throughout the world that still use Microsoft Office. This exchange becomes seamless. OpenOffice.org has been found to be able to open files of older versions of Microsoft Office and damaged files that newer versions of Microsoft Office itself couldn't. Hmm.

OpenOffice.org 2.0 includes CALC, a spreadsheet application like Excel. Calc delivers additional features such as Visual Basic Macros and pivot table support; lending

> OpenOffice.org 2.0 Novell Edition: OOo La La

Novell is the number two contributor to the OpenOffice.org project which puts it in the valuable position to be able to address defects found by customers and the community and drive needed enhancements back into the product.

The Novell Edition delivers support for Microsoft Word and Excel password protected files so you can continue to protect your document security. Also included are extra fonts for greater document fidelity and compatibility with other office suites. This makes document exchange fool proof—rendering the same document regardless of the original format.

Novell is the #2 contributor to the OpenOffice.org project which puts it in the valuable position of addressing defects found by customers and the community and driving needed enhancements back into the product.

to a familiar and thorough spreadsheet experience for your bean counters. If your end users don't experience parity when switching to the new office suite, the transition might be painful. With the addition of Visual Basic Macros and pivot table support, everyone is happy, all the time.

Another feature new to v2.0 which will really knock your socks off is the native widget toolkit. These native widgets match the theme of OpenOffice.org 2.0 to whatever operating system you are using with the help of icons and typeface rendering libraries. If you're on Linux, OpenOffice will adjust to match attributes of Linux, and the same goes for other platforms. The benefit of native widgets is a consistent experience for the user. Without this toolkit OpenOffice might stand out like a pair of red socks, against the rest of your applications. But with them, you experience nothing short of a consistent, streamlined power suit!

Another important benefit to boast is the 24/7 technical support for which Novell is known; your enterprise will always have an OpenOffice.org expert to call when something is unclear.

If you haven't yet made the leap to the Linux platform, don't despair. A Windows version of OpenOffice.org 2.0 is also available from Novell. This version gives your end users the opportunity to take OpenOffice for a spin and experience the parity. Once they're on board, a decision to move to Linux won't cause delays in worker productivity.

Not just lipstick on a pig, it introduces many notable new and functional features, and brings with it the validation of a worldwide community that continues to grow. So closely tied to its users, OpenOffice.org is regularly improved by contributors such as Novell, incorporating recommendations made by its user community. So, my friend, retire your 8-TRACK, burn those leg warmers and stop lamenting the 2005 tour of Twisted Sister. OpenOffice.org 2.0 is truly a revised version you can applaud! N

Novell Gear.

06

The N is in!

For the latest in Novell apparel, business accessories, sporting goods and gifts. You'll find everything from Novell-branded mugs and business cases to shirts, caps, golf balls and more!

Items are added, updated and discounted frequently, so be sure to stop by often to browse the latest products.

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N

Written by David Drewelow and Frank Rego

YOU'RE SECURE

Securing Your Applications:
Deploying Novell AppArmor With
ZENworks Linux Management

In the last issue of *Novell Connection*, we got a glimpse of some of the new features of SUSE Linux Enterprise 10 that make this a standout product and place it above competitive offerings when it comes to addressing the needs of enterprise users. Chief among those requirements is the protection of corporate assets and compliance with strict regulations, even as the threats against those assets are escalating.

To better meet the needs of business users, Novell has contributed an extra layer of security with its SUSE Linux Enterprise 10 release. AppArmor is an open source project led by Novell that delivers a unique profile-based security to Linux systems (both server and desk tops) and provides businesses with very granular control over what the deployed systems can and cannot do.

Last quarter in *Novell Connection*, we learned how AppArmor clos es the door on application breaches, and allows developers and system administrators to effectively wrap a layer of security around each individual application. In this article, we'll give you a recipe for using ZENworks Linux Management to distribute AppArmor security profiles to multiple servers within your organization, and talk about some of the new security features in development for AppArmor.

> The Threat Inherent in Vulnerable Applications

Software flaws in complex applications provide attackers with an avenue to compromise systems that host critical data in the enter prise. Firewalls and other forms of perimeter security only solve part of the problem because businesses have to open their network to access by customers, partners and mobile employees. So the perimeter essentially shrinks down to the machine that hosts the critical data. IT organizations struggle to keep these machines patched to protect against the latest exploits, but this reactive security strategy still leaves businesses exposed.

With experience, hackers are becoming faster at exploiting a vul nerability and sometimes a hacker may be the first to discover the vulnerability. A zero-day exploit is one that takes advantage of a secu rity vulnerability on the same day that the vulnerability becomes generally known leaving businesses little or no time to download, test and apply patches to their systems.

> Introducing AppArmor and ZENworks Linux Management

AppArmor is an application security framework, integrated with SUSE Linux Enterprise, that provides mandatory access control for programs, protecting against the exploitation of software flaws in applications that can lead to compromised systems. AppArmor provides a way to lock down those systems so that software flaws, whether they are known or unknown, can't be exploited to compromise the system.

And AppArmor solves the problem of zero day exploits by providing a proactive security model that enforces good application behavior regardless of the type of attack. The AppArmor framework consists of a complete set of tools that facilitates the development of custom security policies so you can effectively deploy security policies for open source, commercial and custom applications with only about a half day of training.

Novell ZENworks Linux Management makes it easy to embrace and extend Linux in your existing environment. It is the only solution that uses Policy Driven Automation to deploy, manage and maintain Linux resources. It also provides automated and intelligent policies that allow centralized control across the lifecycle of Linux systems for desktop lockdown, imaging, remote management, inventory and soft ware management. The result is a comprehensive Linux management solution that dramatically reduces the overhead needed to manage Linux systems.

After you update an AppArmor profile, you might want to distribute the new profile to systems with similar configurations. Though you can do this with a Linux shell, ZENworks Linux Management provides an easy, fast and reliable method to distribute AppArmor profiles. This article provides a recipe for distributing updated AppArmor profiles using the ZENworks Linux Management bundle interface.

> Getting Started

Here's what you'll need to start distributing AppArmor policies using ZENworks:

- Two or more SUSE Linux Enterprise Server or Desktop machines with ZENworks agents installed (one as the server)
- Novell AppArmor installed and enabled on machines to be managed by ZENworks
- AppArmor RPM creation script (download instructions below)
- Some ZENworks knowledge
- A ZENworks-compatible Web browser (such as Firefox)
- OPTIONAL: Some knowledge of bash commands and vi
- OPTIONAL: Knowledge of RPM package creation

> Creating and Distributing New Profile RPMs

It's easy to create new AppArmor profiles using the static analysis and learning mode tools included as part of the AppArmor framework. See *A Hardened Backend* in the Q2 2006 issue for detailed instruc tions, or take a look at the AppArmor User's Guide at *novell.com/documentation/apparmor*.

Now, let's say we have just created an AppArmor profile for the Gaim chat client included on the GNOME desktop. This is an appro priate application to secure because it listens to an open network port

AppArmor provides a way to lock down systems so that software flaws, whether they are known or unknown, can't be exploited to compromise the system.

on your desktop and is therefore vulnerable to outside attackers. The AppArmor profile for Gaim will be called something similar to opt.gnome.bin.gaim and is in the directory /etc/apparmor.d/.

Now, let's distribute this profile to a number of similarly configured machines. To distribute this profile using ZENworks Linux Management, you need to package it as an RPM. You can create the RPM manually, or by using a script that Novell has created which does most of the work for you, including version control, placing the profile in the appropriate directory, and making sure any abstractions used in the profile are packaged up and delivered to the target machines.

Whether you are planning to use the RPM script or create an RPM manually, first download the RPM script because it contains a few packages important for the completion of either process. To download the AppArmor RPM script, go to *opensuse.org/apparmor* and click on the AppArmor_RPM script link.

> Manual Creation of RPM

Once you have the AppArmor RPM script, open a terminal window and follow these instructions to build an RPM from this profile:

1 Move to the directory that contains AppArmor profiles.

```
cd /etc/apparmor.d/
```

2 Prepackage the profile you want to distribute.

```
tar cvzf apparmor-profile-thisprofile.tgz thisprofile
```

3 Move the tar file to the RPM source directory.

```
mv apparmor-profile-thisprofile.tgz
/usr/src/packages/SOURCES/
```

4 Move to the directory with the RPM specfile template

```
/usr/src/packages/SPECS/apparmor-profile-
template.spec
```

Figure 1 *When creating a new bundle on the [illegible] enter the name of the bundle, the display name, the [illegible] and a description of the bundle.*

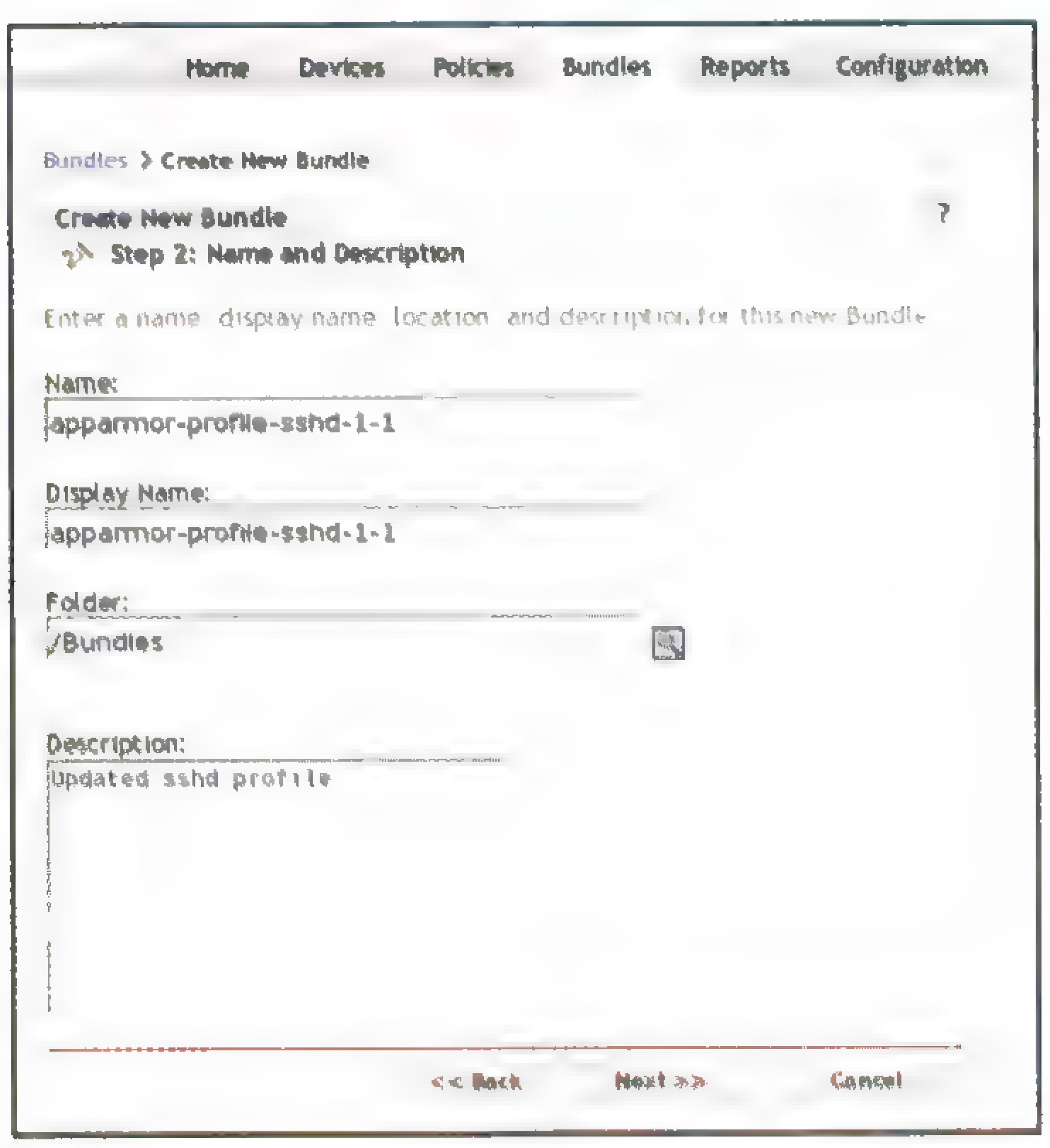
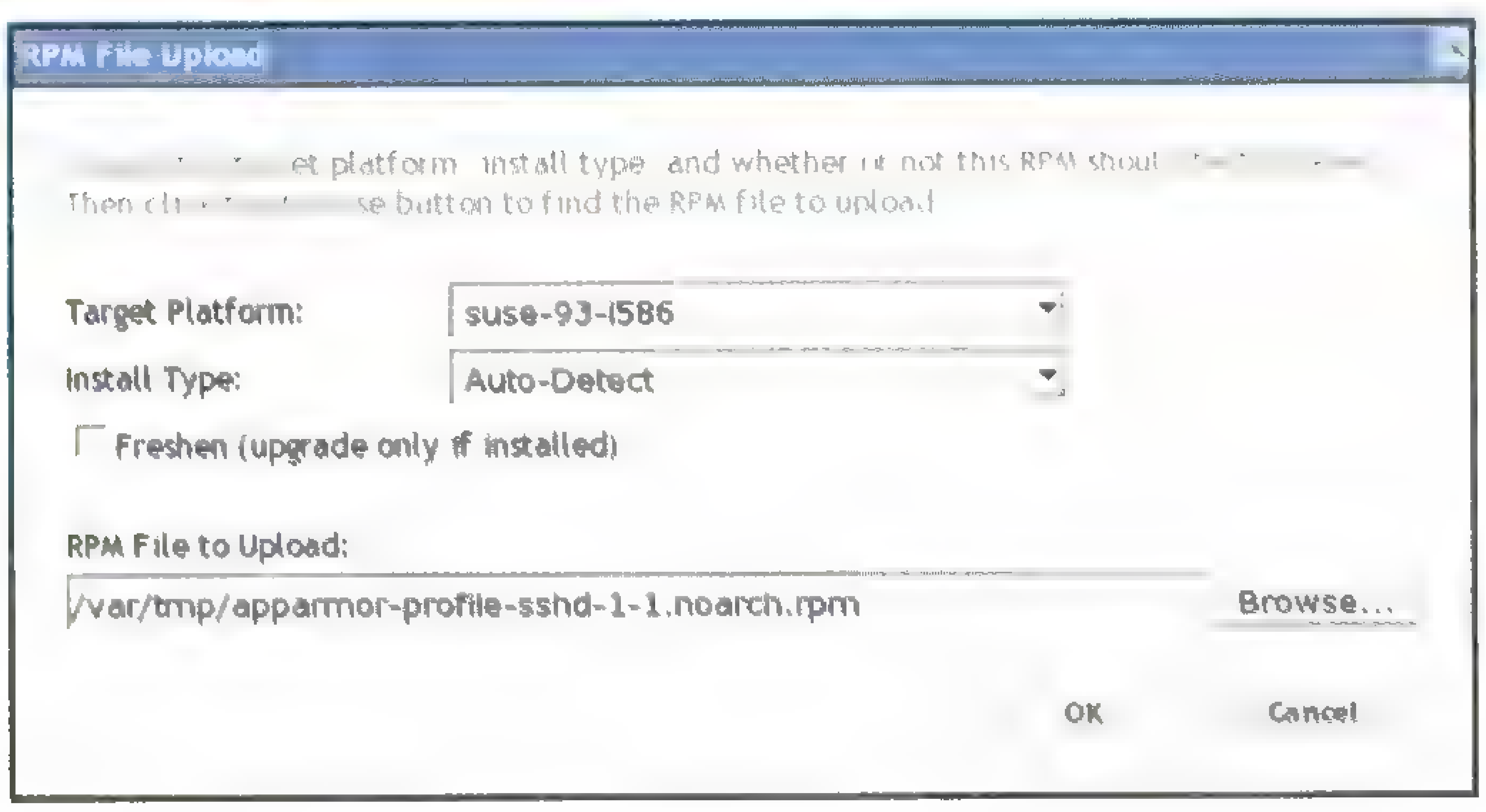


Figure 2 *You can choose the target platform as well as the type of installation on that platform using the RPM File Upload dialog. You can also choose to freshen the RPM.*



5 Copy (don't move) the template file to an appropriate name. For example, if you are distributing a new Gaim profile, copy the file to "apparmor profiles gaim.spec". You might want to append the version number to the spec file, though this isn't required.

```
cp apparmor-profile-template.spec
apparmor-profiles-gaim.spec
```

6 If this is not the first time you've updated this profile, launch a text editor (such as vi), and increment the number in the "Release:" field and resave the spec file.

7 Update the following fields to appropriate values: "Summary", "Name", "Sourceo", "Provides:". Also update the install and %file lines.

8 To build an RPM, do the following:

```
rpmbuild -ba apparmor-profile-gaim.spec
```

9 Go to the section "Uploading RPMs with ZENworks" below to finish.

> RPM Creation Using the Provided Script

Here's an alternate method for creating an AppArmor profile RPM using the script you downloaded earlier.

1 Execute the RPM building script.

```
perl /usr/sbin/pkg-aa-profile.pl
```

2 Answer the questions when the script prompts you. You'll need to know the name of the profile (for example, *opt.gnome.bin.gaim*), and optionally a release number. The release number is necessary to differentiate between different RPMs that might be created on different machines. It will default to '1' if nothing is entered.

3 An RPM will be created in the /var/tmp/ directory.

> Uploading RPMs with ZENworks

The ZENworks Control Center, a Web based tool for administering ZENworks features, is available with ZENworks Linux Management. Once you authenticate to the system, your browser goes to the ZENworks Linux Management home page which gives an introduction to the system and instructions on the basic functions of ZENworks and the Control Center.

The Control Center lists all your devices grouped by server and workstation. This list features inventory, assigned bundles (such as sets of RPM packages to deliver), and other information about each of your devices. From the ZENworks Control Center, you can assign RPM packages to be delivered in bundles and installed to any device or groups of devices.

To upload RPMs to ZENworks Linux Management, do the following

1 Log in to the ZENworks management interface.

2 Select the Bundle tab in the ZENworks interface.

3 Select New, then Bundle from the drop-down menu.

4 Select RPM Package Bundle and click Next.

5 Enter a Name, and optionally a Display Name and Description. Click Next. (SEE FIGURE 1.)

6 Click on Upload RPM. Click Browse and go to the /tmp/var directory. Select the RPM you created. Click Open. The name of the file should appear in the text field. Click OK, then click Next. (SEE FIGURE 2.)

7 Leave the settings for the Pre- and Post-distribution scripts at "None." Click Next and repeat it for the following dialog. (SEE FIGURE 3.)

8 At the confirmation screen, click Finish.
There will be a pause, then you should see a success screen. Click OK.

Figure 3 ... either before or after the bundle has been distributed.

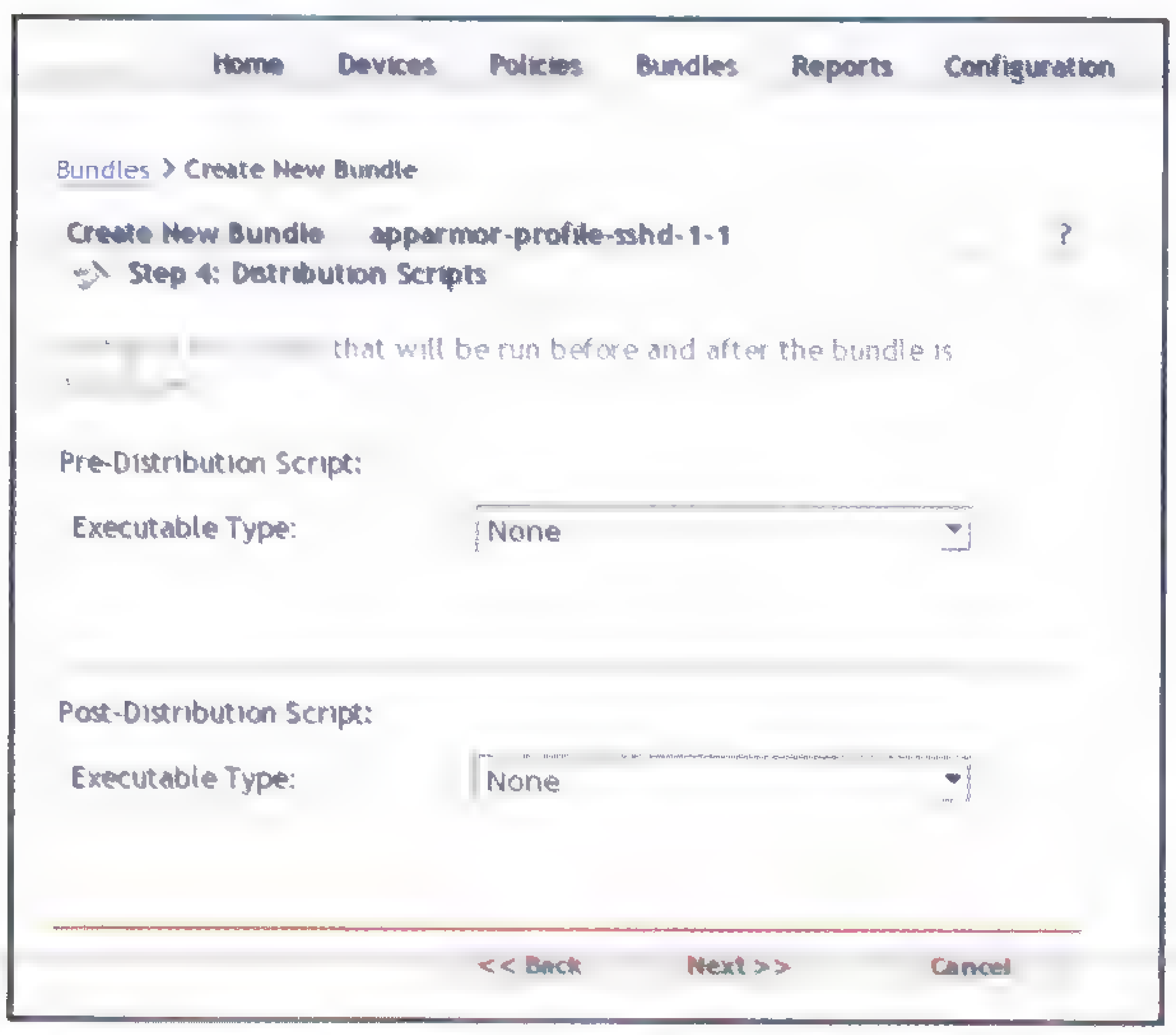
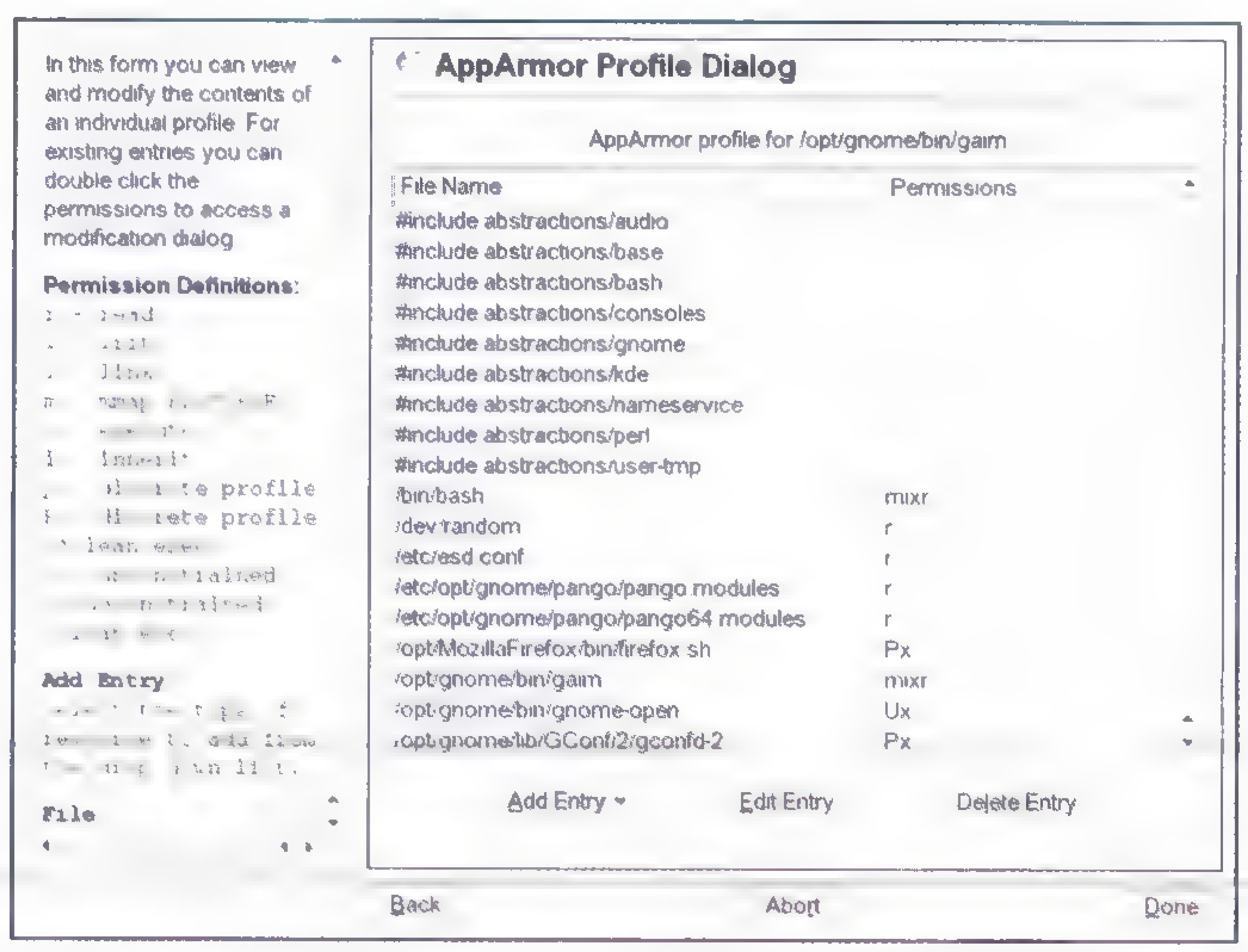


Figure 4 Using the AppArmor Profile Dialog, you can examine the ... single profile and add, edit or delete entries.



For more information or to have a Novell Representative contact you, please visit novell.com/ncmconnect.

> RPM Distribution Using ZENworks

Now that we have developed a profile, created an RPM for that profile and uploaded it into ZENworks Linux Management, it's time to distribute that profile to our target machines. Just a few more steps and we'll be finished!

1. Log in to the ZENworks management interface (if you have not already).
2. Select the Bundle tab in the ZENworks interface.
3. You should see the name of the bundle you created in the previous section (such as apparmor-profile-gaim-1.1.rpm). Click on it.
4. Select Add from the drop-down menu. Select Add again at the next screen. Now you will see a pop-up box. Select the appropriate group from the list, such as Workstations. Click OK. Click Next.
5. Select Relative to Refresh from the drop-down menu for both of the following forms. Click Next each time. At the Special Flags screen, click Next.
6. At the confirmation screen, click Finish.

> Confirming the Bundle Installation

ZENworks bundle updates work on a schedule, and the bundle installation will occur on the next scheduled refresh.

> Checking Bundle Status

You can check for success or error messages in the bundles screen by clicking on the name of the bundle. You may also click on Refresh link on the right-side menu to see pending events related to the bundle.

> Checking or Changing the Refresh Schedule

1. Select the Device tab.
2. Select the appropriate group related to the host you want to configure.
3. Select the device (hostname or system alias).
4. Select Settings.
5. Select the Device Refresh Schedule tab.
6. If you previously changed the refresh schedule, skip this step. This option will not be available. Otherwise, click the Override settings link.
7. Change the Days, Hours and Minutes fields to the numbers you want. For example: "0" Days, "0" Hours, "30" Minutes, will make the system refresh every 30 minutes.

Note:
The refresh schedule will not be updated until the next refresh event.

> Conclusion

AppArmor secures individual applications against latent defects and protects an entire system against a particular threat, such as a network attack, by protecting all applications that face the network. AppArmor was designed for usability to meet the needs of most Linux users, both home and enterprise. SUSE Linux Enterprise includes the AppArmor framework, a set of default security profiles and a comprehensive tool set for developing custom profiles. ZENworks Linux Management is a powerful solution to deploy, manage and maintain Linux resources. Using ZENworks Linux Management, you can easily deploy AppArmor profiles from a central location to multiple machines in your enterprise. N

Additional Reading

AppArmor Information, Novell,
novell.com/apparmor

ZENworks Product Information, Novell,
novell.com/products/zenworks

AppArmor Whitepaper, Novell,
novell.com/collateral/4821055/4821055.pdf

AppArmor, Documentation for versions 1.2, Novell,
novell.com/documentation/apparmor/

AppArmor Software Download, OpenSUSE,
http://en.opensuse.org/Apparmor

RPM Howto (dated, but useful), rpm.org,
rpm.org/RPM-HOWTO/

Packaging Software with RPM, IBM,
http://www-128.ibm.com/developerworks/library/l-rpm1

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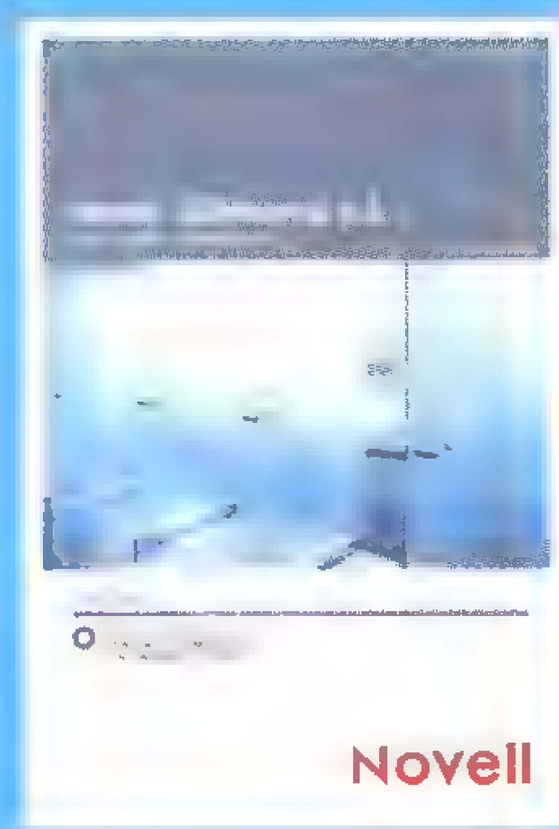

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by Michael Wilkinson

Overwhelmed by the Choices You Have with the New Novell Open Workgroup Suite

BOWLED OVER

Suppose that for the last several weeks you have been submitting project proposals to be considered and hopefully included in the 2007 IT budget plan for your company. The overall plan has finally been pulled together and you have been summoned to the final IT budget review. As the meeting opens, your boss thanks everyone for all of the hard work they have put into the budget process. The first slide your boss shows on the screen is a comprehensive list of all the projects that had been submitted. Wow! Besides your projects, many others had been submitted and several had very important and strategic-sounding titles. As the boss moves quickly through the next few slides, you notice the overall dollar figure allocated to next year's budget seems huge, even though it is accompanied by phrases from the boss like "doing more with less" and how it really is possible to "squeeze blood from a turnip." With that much money on the table, you hope more than one of your projects will be funded.

As the final slide comes up, everyone starts to chatter. The normally calm IT demeanor becomes the chaos of dozens of startled exclamations and mini conversations. The title bar reads "Approved 2007 Budget Projects." Why the commotion? Below the title bar you read only three items:

1 Upgrade Hardware to Support Microsoft Vista
2 Renew Microsoft Enterprise Agreement (with software assurance)
3 Roll out Microsoft Vista and Office 2007 (when they are finally available)

You can't believe your eyes. Every strategic project was being put on hold while the entire IT budget was being allocated to (or decimated by) one vendor. When the room is finally quiet, the boss steps back up and thanks everyone again for their hard work and opens the meeting up for questions. As the shock of the plan falls onto the crowd, one of the more senior IT administrators raises his hand. His question is simple: "Are you serious?" The boss' reply, which will forever echo through your mind, was both short and ominous: "What choice do we have?"

> You Always Have A Choice

The Novell Open Workgroup Suite was announced at Novell BrainShare 2006. It was highlighted in a recent article in the *Novell Connection* magazine. (See *The New Novell Open Workgroup Suite* in the 2nd Quarter 2006 issue or online at *novell.com/connectionmagazine/2006/q2/suite_deal.html.*) It represents a complete workgroup productivity solution from desktop to server and includes networking and infrastructure services, collaboration tools and resource and systems management—as well as an open desktop environment and office productivity suite. The industry has taken note, and many organizations are already deploying this open, cost-effective alternative to a Microsoft based workgroup infrastructure. But understanding that other organizations want to make the shift in phases, this article will give you practical ideas on leveraging specific components of the suite to save money, increase flexibility and position you to take advantage of a full, open standards-based solution when the time is right.

If you're reading this article, you more than likely manage NetWare and/or Windows servers and use at least one other Novell solution, for example, GroupWise or ZENworks. You might have dabbled with Linux, extended or repaired directory schemas, and you know that the term GINA refers to a graphical interface for identification and authentication and not your coworker's girlfriend. Every day you arm yourselves to fight in the IT war being waged both inside and outside your company. The reason for battle is clear: The enemy is within the walls. But who or what is the enemy, and how can the Novell Open Workgroup Suite help you in your daily fight?

This is the first in a series of articles in which I will provide steps and strategies to help IT shops, both large and small, identify the enemy within their walls and win the IT war. We'll lay out a battle plan, or roadmap, to successfully get from point A to point B, utilizing many of the tools and solutions found in the Novell Open Workgroup Suite. The technologies included in the Novell Open Workgroup Suite empower you to make choices (rather than locking you in) while helping you be flexible as your IT landscape changes.

Now let's be honest: working in IT is really about minimizing disruption while maximizing productivity, all at a reasonable cost. This article focuses on what you can do today to shore up, extend and protect your current IT investments using just a few of the technologies found in the Novell Open Workgroup Suite; and do so without disruption to your users. In subsequent articles we'll discuss how you can best determine your blend of heterogeneity, and in the process, look for ways to significantly reduce your costs of owning and managing the desktop. I'll also show why the term "Workgroup" is a vital part of the Novell Open Workgroup Suite name, and how it can lead to greater productivity at lower costs.

Finally, I'll explore what it means to bring your company the benefits of Linux in the workgroup and how you can successfully get there.Now let's be honest: working in IT is really about minimizing disruption while maximizing productivity, all at a reasonable cost. This article focuses on what you can do today to shore up, extend and protect your current IT investments using just a few of the technologies found in the Novell Open Workgroup Suite; and do so without disruption to your users. In subsequent articles we'll discuss how you can best determine your blend of heterogeneity, and in the process, look for ways to significantly reduce your costs of owning and manag

> **"If you know the enemy and know yourself, you need not fear the result of a hundred battles."**
> Sun Tzu

ing the desktop. I'll also show why the term "Workgroup" is a vital part of the Novell Open Workgroup Suite name, and how it can lead to greater productivity at lower costs. Finally, I'll explore what it means to bring your company the benefits of Linux in the workgroup and how you can successfully get there.

> Know the Enemy And Know Yourself

Who is the enemy that IT departments do battle with on a daily basis? According to Sun Tzu (a general who lived in the 6th century BC and was a contemporary to one of the greatest Chinese thinkers of ancient times: Confucius), it is vital to know who the enemy is so you can know how to fight to win. He wrote a very influential book on military strategy entitled *The Art of War*.

Some of you might wonder who the enemy is I keep referring to. No, the enemy is not Microsoft. The enemy relates to control, or rather lack of control over your IT infrastructure. In many cases, very unintentionally, an IT department is its own worst enemy. They continue down paths paved years before, without knowing the reasons why, or challenging the rationale for processes they follow. The first step toward fighting the enemy and regaining control of your infrastructure is to know yourself; meaning know what your IT infrastructure consists of. Doing this means bringing every device out of darkness and under management; knowing what every device consists of and where it is.

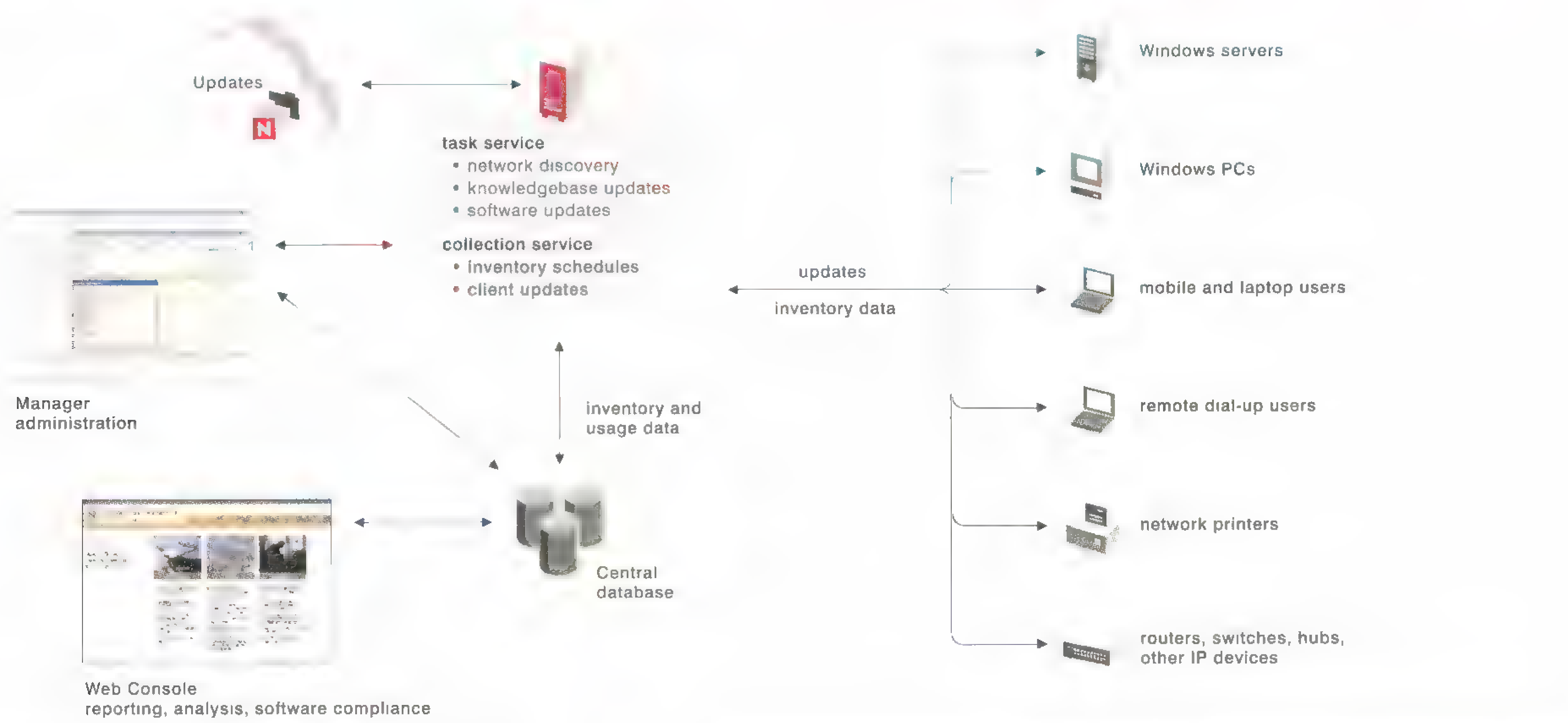
The Novell Open Workgroup Suite is comprised of several key server and workstation technologies and solutions. (See *Hitting The Suite Spot.*) The key to bringing every device under management is to install the ZENworks 7 agents on every device, specifically the Asset Inventory component. (See *ZENworks 7 Components.*)

Start Small

Asset Management is a fairly recent addition to the ZENworks suite of products. If you haven't used the Asset Inventory feature of ZENworks 7, then I recommend you start small. Asset Inventory has two different modes of deployment:

- stand-alone
- enterprise

Figure 1 *ZENworks Asset Inventory Basic Configuration.* *The stand-alone deployment mode runs all of the server processes on a single machine, including an MSDE [illegible] inventory information*



The stand alone deployment mode runs all of the server processes on a single machine, including an MSDE database which is used to store all of the collected inventory information. (SEE FIGURE 1.) The stand alone deployment mode is good for evaluations and pilot projects. Even if you are familiar with Asset Inventory, you should start with a small sample of representative machines so you become familiar with the types of inventory you'll be collecting, and understand the potential customizations you might want to implement. As a part of the initial data collection, you can involve users in the processes. When a scan takes place, users can be prompted to enter indirect inventory information—such as the department or the user's phone number—you want included in the inventory details. Once you collect your first round of data, look at a workstation detail report to see if you like the level of detail you are getting. While Asset Inventory includes an extremely detailed database of commercial applications, it obviously won't recognize any applications that have been developed in house. By reviewing the FNI (Files Not Identified) section of the report, you can see what applications were found but were not matched to any known applications in the database. You can provide your own data to identify these applications so the applications will be recognized and reported on subsequent scans. Once you get your initial data collection the way you want it, expand your scope to include another group of machines, gather your new inventory, scrub and customize your data, and expand your scope again. There have been several articles in previous editions of *Novell Connection* magazine focusing on Asset Management and ZENworks. (See *Manage Your Assets* in the May/June 2005 issue or online at *novell.com/connectionmagazine/2005/05/tech_talk_5.html.*) The important thing to remember here is to start small, get your data sets configured the way you want and then expand out.

> Move Not Unless You See An Advantage

Once you have collected all of the inventory data for your environment, you can standardize all of your Windows systems on Windows XP. Why Windows XP? Surprisingly, Sun Tzu provides some insight.

> **"Move not unless you see an advantage; use not your troops unless there is something to be gained; fight not unless the position is critical."**
>
> Sun Tzu

In other words, if you're looking for a more open alternative to Windows in the long term, you shouldn't be spending money to upgrade it in the short term. With the impending (somewhere on the horizon) release of Windows Vista and Office 2007, where is the real advantage? Will Vista be a nondisruptive force, increasing productivity at a reasonable cost? Or are you more inclined to make the move to Linux, realizing the benefits that open standards bring to workgroup support and productivity? If this is the case, but you want to make the transition at your own pace, it's reasonable to secure your Windows XP environment and leverage additional life from it as you deploy SUSE Linux Enterprise Desktop—also included in the Novell Open Workgroup Suite—in areas where it makes sense.

Once you've done this, as we'll discuss in future articles, you can gain additional flexibility and cost savings by replacing Windows based applications with open alternatives.

If, in your company, you see an advantage in upgrading certain desktops to Vista, the inventory data you collected with the Asset Inventory component of ZENworks 7 will be vital in determining which hardware in your environment is Vista ready, which hardware is Vista compatible and which hardware is Vista averse.

> Make Your Position Unassailable

Once you know what you have and moved your older Windows desktops to Windows XP or SUSE Linux Enterprise Desktop, it's important to secure your investment.

> **"The art of war teaches us to rely not on the likelihood of the enemy's not coming, but on our own readiness to receive him; not on the chance of his not attacking, but rather on the fact that we have made our position unassailable."**
>
> Sun Tzu

Is your current position unassailable? Have you ever been hit by an automatic update from Microsoft (SUS/WUS) that keeps you busy for days? Have you ever been infiltrated by a worm or virus because you failed to deploy an existing operating system patch? This is where implementing a Patch Management solution comes into play. Without a Patch Management solution in place, you could literally spend a full time resource installing and updating patches in a medium-sized network of 1000 workstations and 10 servers all day every day (including weekends).

That's why the Novell Open Workgroup Suite includes the ZENworks 7 Suite, which delivers comprehensive server, desktop and handheld management tools. Also as a part of ZENworks 7, users get a 90 day evaluation version of Novell's Patch Management solution. You need to dedicate a machine to act as the patch server. The disk space requirements are fairly significant, because the machine serves as a patch storage machine, and some patches (like SP2 for Windows XP) can be very large.

For a small evaluation, 5 GB of free space on the server is sufficient. For a fully loaded patch server (which will handle up to 1000 devices), the server should have at least 20 GB of free space. If you're doing an evaluation, you can use MSDE 2000 (which is limited to 8 concurrent connections) that comes with the software. For a fully loaded patch

Hitting the Suite Spot

Workgroup Components
Novell Open Enterprise Server
Novell GroupWise 7 (including GroupWise Mobile Server)
Novell ZENworks 7
SUSE Linux Enterprise Desktop
Novell Edition of OpenOffice.org 2.0 for Windows
SUSE Linux Enterprise Server

Solutions
Server Operating System
Collaboration Solution
Resource and Systems Management Solutions
Desktop Operating System
Productivity Suite

Platforms
Heterogeneous platform support

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server, MS SQL Server 2000 is required and the number of connection licenses needed are dependent on the size and frequency of the patching policies that are implemented.

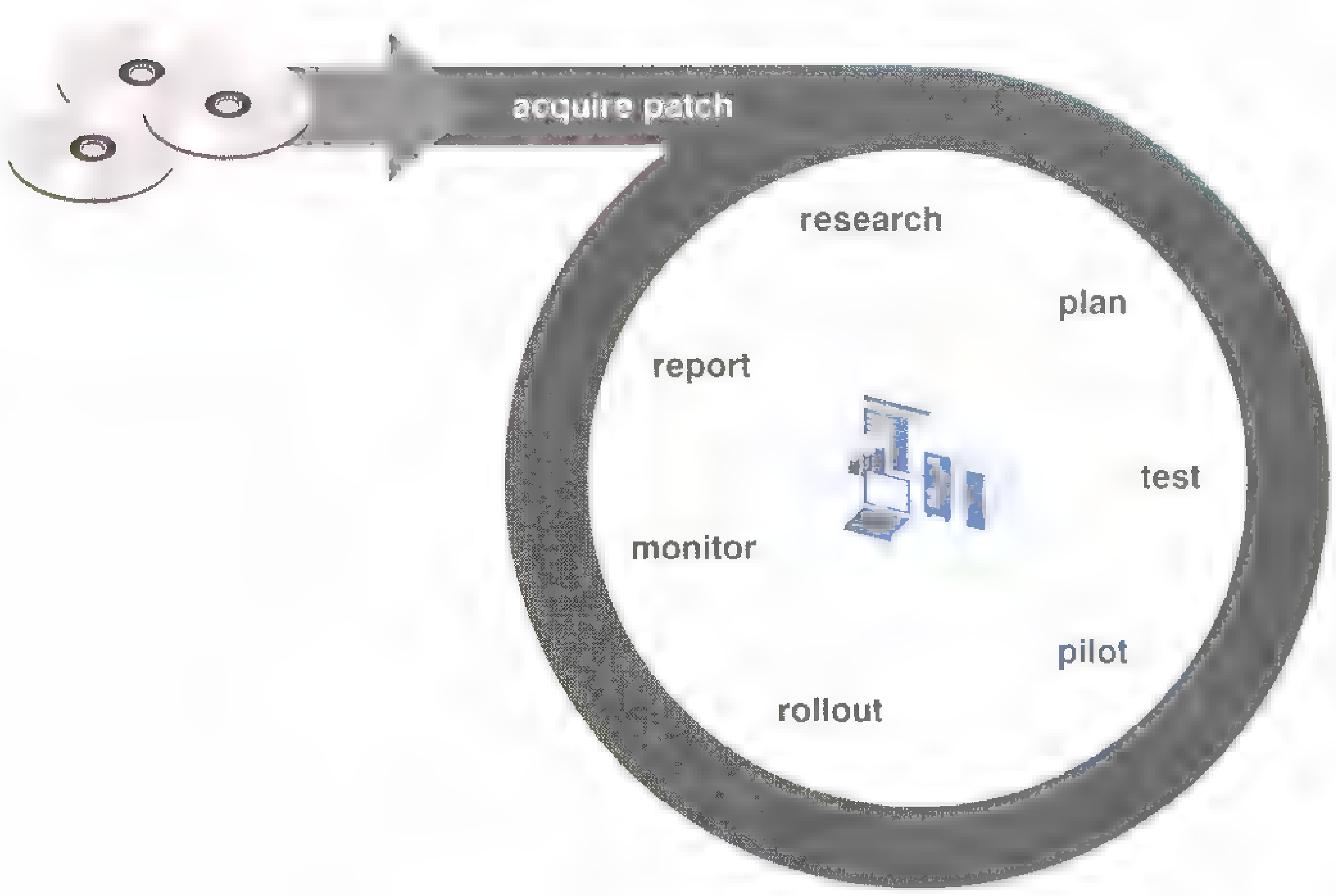
Strike At What Is Weak

If you are not familiar with the Novell Patch Management solution, you will find it interesting, and extremely valuable, that the solution supports more than just operating system patches. Patches from multiple vendors including Microsoft, Novell, Adobe, Real, Macromedia, Corel, McAfee, Sophos, Authentium, Command, Oracle, Sybase, Citrix, IBM, Compaq, Dell, Apple, CA, Symantec, SAP and Norton are collected and distributed through Novell's Patch Management Solution. Like everything else Novell does, patching is policy based and can be set up to automate compliance. The Novell Patch Management Solution simplifies and automates the entire patching process from obtaining the initial patch, which has already been validated, to testing, piloting and mass deployment of the patch into your infrastructure. (SEE FIGURE 2.)

> "So in war, the way is to avoid what is strong and to strike at what is weak."
> Sun Tzu

Where are you weak? Do you know? Not only does the Novell Patch Management Solution support multiple vendors, it also supports multiple platforms including Linux and Windows 98, which even Microsoft no longer supports. Similar to the Asset Inventory solution, the Novell Patch Management solution provides a series of robust reports providing detailed information on your infrastructure's current state with information on how you should proceed. As stated previously, information is power, and the information provided the Novell Patch Management solution empowers IT personnel to do their jobs more effectively.

Figure 2



Patching Costs Beyond 90 Days

Once the 90-day trial has expired, the cost to continue using the Novell Patch Management solution is $18 per device per year. That's $1.50 a month or about 5 cents a day per device. Compared with a full-time resource needed for a medium-sized network of 1000 workstations and 10 servers, a little over $18,000 per year represents a sizable cost savings.

> Taking The Offensive

Charging blindly into the IT war can be fatal for your IT budget, detrimental to your user productivity and disruptive to your strategic position.

> "Security against defeat implies defensive tactics; ability to defeat the enemy means taking the offensive."
> Sun Tzu

The Novell Open Workgroup Suite gives you the ammunition to take the offensive. Initially, you can use the Novell Open Workgroup Suite to discover your assets, extend your investment and secure it while you deploy open alternatives in areas that make sense. This can easily be done with little or no disruption to your users or their productivity, at a very reasonable cost.

In the next two articles we will look into the next steps of how you can strategically apply other technologies and solutions from the Novell Open Workgroup Suite following this phased approach. We'll show you how you can reduce the sizable portion of your IT budget likely devoted to Microsoft Office by deploying the Novell Edition of OpenOffice.org, which, when acquired as part of the Novell Open Workgroup Suite, is supported on both Linux and Windows. We'll also discuss open alternatives to other common end user applications. Finally, we'll cover strategies for replacing back-end technologies and tools that will save you additional money and prepare you for a Linux-based environment. Migrating servers to Open Enterprise Server, switching Exchange to GroupWise on Linux and leveraging other components of the ZENworks Suite will all be covered. As a result, you'll see that you do have a choice when it comes to workgroup productivity, and that it can be open. So stay tuned! N

ZENworks Suite Components

1	Desktop Management
2	Server Management
3	Handheld Management
4	Linux Management
5	Identity Manager Bundle Edition
6	Data Management
7	Novell Messenger
8	Personality Migration
9	Software Packaging
10	Patch Management
11	Asset Inventory

By Steve DuScheid and Randy Britton

SHELF LIFE

The IT Infrastructure Library (ITIL),
Its Best Practices and How ZENworks Asset Management
Can Help YOU Get There


Generals in Gray
CIVIL WAR DICTIONARY
Digest

Unless you live on a deserted island, you have probably heard of the IT Infrastructure Library—commonly referred to as ITIL. If you haven't, see *IT Gets It* in the March/April 2005 issue for more information on ITIL (*novell.com/connectionmagazine/2005/03/tech_talk_2.html*), or take a quick look at the *What Is ITIL* sidebar.

What you may not be as familiar with, is the importance of software asset management to successful ITIL implementations, or even that there is a specific ITIL book dedicated to Software Asset Management (SAM). ZENworks Asset management can play a key role in automating and supporting several key ITIL best practice areas, including Software Asset Management and Service Support.

This article reviews ITIL best practices and summarizes how ZENworks Asset Management functionality can be mapped to specific ITIL guidance in these areas.

Software Asset Management

While many ITIL projects are centered around Service Support and Service Delivery, the ITIL guide to Software Asset Management is gaining traction as a process framework for managing enterprise software assets.

ZENworks Asset Management offers IT managers a host of capabilities that support and enable ITIL initiatives including Service Support, Service Delivery along with Software Asset Management; however, the focus of ZENworks Asset Management is in dealing with the complexities of IT assets, and software in particular.

ITIL Books

The Office of Government Commerce publishes and updates books on the following topics:

- Service Support (Service Desk, Incident Management, Problem Management, Configuration Management, Change Management and Release Management)
- Service Delivery (Capacity Management, Financial Management for IT Services, Availability Management, Service Level Management and IT Service Continuity Management)
- Software Asset Management (SAM)
- ICT Infrastructure Management
- Application Management
- Security Management

SAM Defined

The ITIL Best Practices for Software Asset Management Guide defines SAM as: *"...all of the infrastructure and process necessary for the effective management, control and protection of the software assets within an organization, throughout all stages of their lifecycle."*

The ITIL SAM Guide consists of 10 chapters that outline everything from SAM basics to tools and technology. In the following sections, we map specific recommendations and guidance to ZENworks Asset Management capabilities to show how the product supports this important framework.

Since ITIL deals fundamentally with process, much of the guide addresses recommendations around policies, procedures and related documentation. As such, only those sections and recommendations directly related to tools and technology are addressed in this article.

ITIL Best Practices to ZENworks Asset Management Mapping

Chapter One: Introduction

1.4 SAM Principles

A scalable, structured approach needs to be adopted in order to achieve [SAM objectives] for each organization.

It is impossible to implement an effective SAM process without the successful design, development, implementation and maintenance of an accurate SAM database, automatically updated from the live infrastructure.

ZENworks: ZENworks Asset Management provides a way to organize SAM-related activities around a structured, scalable database.

ZENworks Asset Management offers a complete, automated inventory process, including:

- agentless network-wide discovery
- agent based workstation/server inventory with numerous automated scheduling/scanning options
- optional input forms to update inventory data

1.5.1 Managing Risks

SAM facilitates the management of significant business risks including:

- legal and financial exposure
- damaged reputation
- unexpected financial workload impact
- security breaches including unauthorized disclosure of confidential information
- snexpected problems with acquisitions/mergers/demergers
- interruption of operations
- unsupportable operations

ZENworks: By enabling an effective SAM program and ensuring compliance with software license provisions and intellectual property laws, ZENworks Asset Management helps address the key risks out-lined in ITIL Best Practices for SAM guide.

1.5.2 Controlling costs

- better negotiating position
- improved strategic infrastructure planning
- prevention of software over deployment
- reduced hardware costs
- improved software purchasing arrangements
- reduced cost of internal licenses support
- reduction in process and direct infrastructure costs
- reductions in problem resolution costs
- potential tax benefits

ZENworks: With a single location for software asset information, ZENworks Asset Management enables an organization's database; you gain the ability to control and reduce costs associated with soft ware licenses, upgrades, maintenance and support.

1.6.5 Potential issues for implementing SAM

Underestimating the effort required to identify installed software.

ZENworks: Accurately identifying software applications (not just files) is a core strength of ZENworks Asset Management. Using a unique, patented approach based on a Knowledgebase, built and maintained by Novell Technology Analysts, ZENworks Asset Management identifies and distinguishes:

- normalized manufacturer, product, edition and version
- suites and suite components
- category/subcategory
- OS and app service packs/releases and OS hotfixes
- serial numbers
- virus definitions/engines
- evaluation versus full product installs
- runtime versus full version distinction
- language editions
- locally defined products, for example, in-house applications

1.9.1 Overall baseline recommendations

Inventories: Create and maintain accurate inventories of software and hardware assets including costs, with secure control over access to software assets, for example, proof of-license and distribution copies of software.

ZENworks: ZENworks Asset Management offers comprehensive hardware and software inventory. Software purchase information and proof-of-ownership data can be imported or input to support license counts.

1.9.1 Overall baseline recommendations:

Reconciliations: Perform regular reconciliations of the following and resolve any identified exceptions promptly:

A. what is actually installed against
B. what is recorded against
C. licenses owned

ZENworks: ZENworks Asset Management includes several methods and tools to facilitate the reconciliation of the license view of software inventory to purchased products, including:

- Reseller connectors (CompuCom, Softchoice, SHI and Software Spectrum)
- Product catalog to aggregate individual purchases and ensure one-time reconciliation
- Autoreconcile tools to match purchased products to discovered products

Chapter Two: Context

2.1 Special characteristics of software assets

- Software is frequently upgraded and license conditions can change with each upgrade
- End users are asked to agree to licenses during installation and are sometimes asked to install and run other programs as evaluation software.

ZENworks: ZENworks Asset Management addresses these software specific challenges:

- Upgrade license records in ZENworks Asset Management can be linked to base licenses to create a relationship and record license amounts properly
- The sophisticated software inventory methods used in ZENworks Asset Management distinguishes between full and evaluation software for many major manufacturers and titles.

Chapter Five: Process Overview

5.2.1 Core Asset Management processes Asset Identification

ZENworks: The core capability of ZENworks Asset Management is asset identification and tracking related asset attributes.

What is ITIL?

ITIL was developed by the Office of Government Commerce (OGC) in the United Kingdom in the 1980s and provides a comprehensive, consistent and coherent set of best practices focused on the management of IT services and related processes. ITIL best practices are described in a series of books published by the OGC and used by many organizations worldwide to:

- develop a common set of terminology for IT and business professionals
- define predictable and reliable IT services that cross IT silos
- implement IT process improvements and improve service levels
- reduce the cost associated with IT services and support

Industry analysts have noted that organizations are using ITIL and other process frameworks to move from a traditional IT organization focused on technology to a service-oriented IT organization focused on business services. Figure A lists attributes of these two types of IT organizations.

Figure A

Traditional IT Organization	Service-oriented IT Organization
technology focus	process/service focus
fire-fighting	preventative
reactive	proactive
users	customers
isolated/silos	integrated/enterprise-wide
one-off/ad-hoc	repeatable/accountable
informal processes	formal best practice
IT internal perspective	business perspective
operational-specific	service orientation

5.2.2 Core Asset Management processes Asset Control

ZENworks: ZENworks Asset Management uniquely identifies assets and tracks them through their lifecycle to ensure proper control.

5.2.3 Core Asset Management processes Status Accounting

ZENworks: ZENworks Asset Management tracks configuration details from scan-to-scan and provides comprehensive history reports to show changes over time.

5.2.4 Core Asset Management processes Database Management

ZENworks: ZENworks Asset Management is based on a core database that is optimized for asset tracking and reporting.

5.2.5 Core Asset Management processes Financial Management

ZENworks: ZENworks Asset Management allows you to record software purchase information, including costs, to provide a financial basis for decision-making and analysis.

5.3.4 Procurement

During the process of the internal order, a check should be made as to whether there are already any available licenses to be used.

ZENworks: ZENworks Asset Management Web Console provides IT and procurement managers easy access license compliance reports that show critical information in one view:

- licenses owned (entitlements)
- licenses consumed (installed)
- over/under license status
- software usage levels

This information is automatically updated as purchase records are imported and inventories are refreshed. So, managers can clearly see when licenses are available to be deployed.

5.3.4 Procurement

There need to be corresponding procedures to formally transfer the license if management is handled on a decentralized basis.

ZENworks: ZENworks Asset Management includes a license allocation feature that allows purchased licenses to be allocated and reallocated based on department, site, cost center and workstation.

5.3.6 Deployment

During the deployment stage, all components of a release are deployed to their agreed and approved environments.

ZENworks: Using ZENworks Asset Management in conjunction with ZENworks Suite, IT managers can align operations with SAM and license compliance data to ensure that deployments do not cause compliance violations.

5.3.7 Operations/Monitoring ongoing operations relevant to SAM

Identify individual exceptions to SAM policies, for example, instances of unauthorized software installed on workstations immediately or soon after installation.

ZENworks: ZENworks Asset Management offers several ways to archive this best practice:

- With the unique Knowledgebase approach to discovery, software

Figure 1 [illegible] s owned (entitle[illegible] [illegible] installed), over/under license status, and soft[illegible] usage leve[illegible] [illegible]ed as purchase records a[illegible] imported and inventories are refreshed. S[illegible]s can clearly see when licenses are available to be deployed.

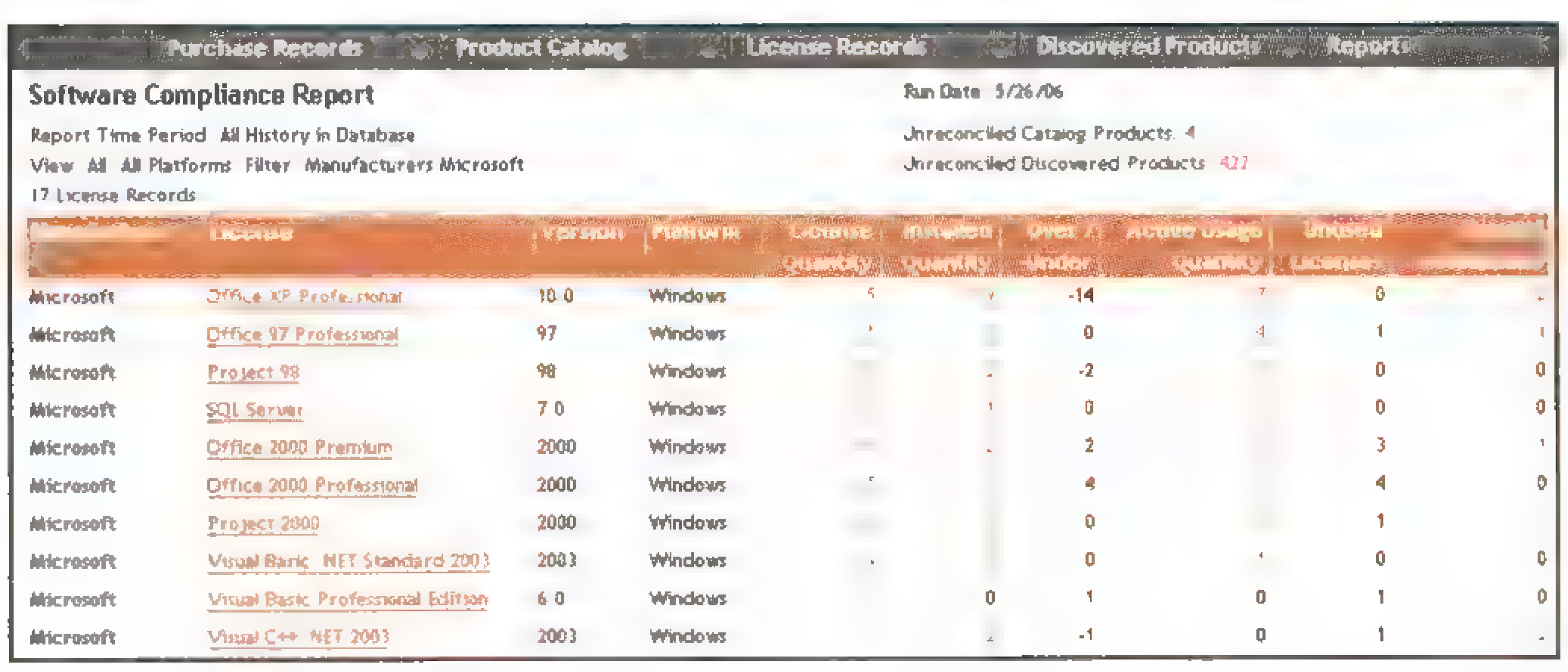
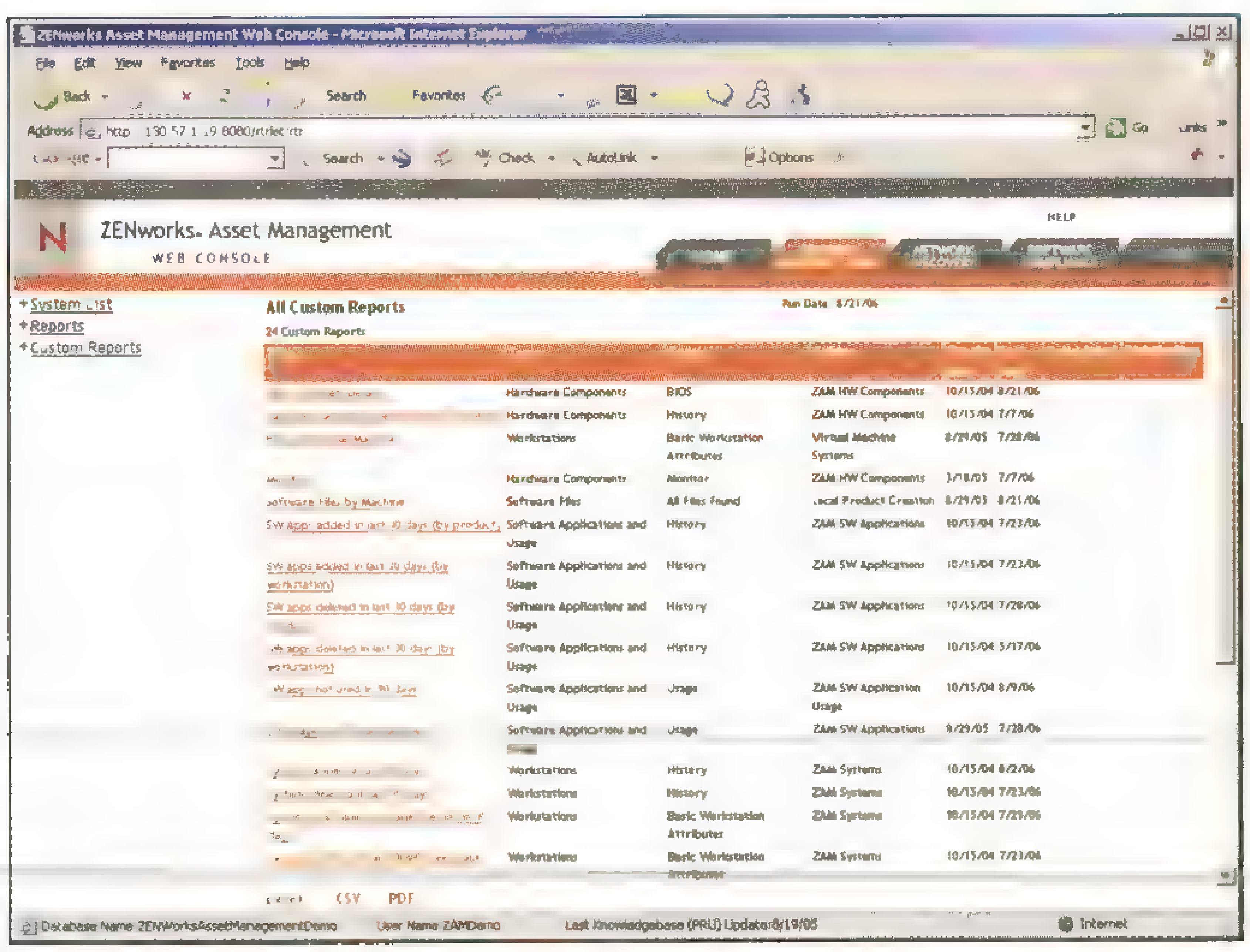


Figure 2 *ZENworks Asset Management easily runs reports that show exceptions [illegible] policies, such as software applications that have been recently added or [illegible]tions that haven't been used, or hardware that has had compo[illegible]*



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is categorized to help IT managers identify applications that may be problematic. For instance, common malware is categorized and IT managers can be alerted to its presence on managed workstations.

- ZENworks Asset Management allows IT managers to create their own categories for applications, for example, nonstandard, so they can report and alert based on their own policies.

5.3.8 Software deployment optimization

Active software usage (as opposed to just installation or availability) should be reviewed periodically to determine whether deployment corresponds to end-user needs.

ZENworks: ZENworks Asset Management includes comprehensive software usage tracking and analysis. Once enabled, it automatically tracks usage of all applications and correlates it back to known applications within the Knowledgebase. Data tracked includes:

- application
- active usage time (foreground window)
- runtime (total time opened)
- number of starts
- last used
- workstation
- user

What in the World is a CMDB? Is ZENworks Asset Management One?

You can hardly discuss ITIL without explaining the role of the Configuration Management Database (CMDB). At the core of the CMDB is what ITIL calls Configuration Items (CIs).

CIs are defined as: *Any Component that needs to be managed in order to deliver an IT Service. Information about each CI is recorded in a Configuration Record within the CMDB and is maintained throughout its Lifecycle by Configuration Management. CIs are under the control of Change Management. CIs typically include hardware, software, buildings, people and formal documentation such as process documentation and SLAs.*

A **CMDB** is defined as: *A database used to manage Configuration Records throughout their lifecycle. The CMDB records the attributes of each CI, and relationships with other CIs. A CMDB may also contain other information linked to CIs, for example Incident, Problem or Change Records. The CMDB is maintained by Configuration Management and is used by all IT Service Management Processes.*

Most analysts and practitioners involved in ITIL projects recommend a federated approach to building and maintaining the CMDB. The federated approach involves a CMDB that only stores a subset of the information about CIs, incidents, changes, etc. The federated CMDB model involves linking numerous databases and mechanisms with which to synchronize (or at least import) data. In this model, the CMDB contains baseline information on infrastructure components and their relationships such that management can produce reports.

At its core, ZENworks Asset Management contains CIs, CI attributes and some of the relationships that need to be tracked under ITIL. While ZENworks Asset Management does not contain data about incidents, problems, requests for change, etc., some organizations find that it serves as a good baseline CMDB; however, other organizations use ZENworks Asset Management as a "feeder" in a federated CMDB model.

5.4 Verification and compliance

Any truly effective SAM process will have automated methods for trapping noncompliance issues and escalating them to the appropriate resources for immediate attention.

The SAM process should not only be capable of trapping and escalating these issues but also to instigate remedial action.

ZENworks: Within the ZENworks Asset Management Web Console, IT Managers can set alerts for out-of-compliance situations. These e-mail alerts can be tailored based on severity, for example, quantity of under-licensed situations, so they can be sent to the appropriate levels of management.

Using ZENworks Asset Management in conjunction with ZENworks Suite, IT managers can take corrective action to uninstall applications to correct compliance violations. Of course, this only makes sense if the license is not needed, which can be easily determined through software usage information in ZENworks Asset Management.

8.9 Current purchase records

Organizations can benefit from having access to current purchase records. Some resellers offer a download capability into in-house SAM systems for recording all licenses purchased for use in License Management.

ZENworks: In addition to supporting a general import format, ZENworks Asset Management includes reseller connectors (currently including CompuCom, Softchoice, SHI and Software Spectrum) whereby specific reports of license transactions from these resellers' Web sites can be downloaded and imported directly into license tracking in ZENworks Asset Management. **N**

About ZENworks Asset Management

ZENworks Asset Management, introduced in mid-2005, includes comprehensive hardware and software discovery and tracking along with license compliance and software usage analysis.

Asset Inventory, a core component of ZENworks Asset Management, includes network discovery and computer hardware and software asset tracking. Asset Inventory is included in the ZENworks Suite and existing customers of the following three products with upgrade protection or maintenance are entitled to it:

- ZENworks Suite
- ZENworks Desktop Management
- ZENworks Server Management

Built on top of Asset Inventory, Asset Management includes:

- Software Compliance
- License tracking
- License view of software inventory
- Reconciliation and compliance status
- License allocation
- Software standards management

Software Usage Analysis

- Monitoring
- Trend reporting

By Randy Britton

Riding High

Freeing Yourself From the Demands and Restrictions of Provisioning and Software License Compliance


01004-703

In its early days, IT asset management revolved around one thing: counting. How many PCs do you have? How many copies of a certain application do you own? How many PCs are associated with those licenses? While the data obtained from enterprise-wide inventories informed important projects, such as technology upgrades and migrations, hardware lease contracts and software license redeployments, the fact remained that young IT asset management processes were relatively primitive and rarely drove critical business decisions.

Today, the stakes are higher. Thanks to increasing pressure to prove value to the enterprise, IT organizations have evolved their asset management strategies beyond simple bean-counting exercises. Mature IT asset management (ITAM) programs now proactively drive high-level initiatives such as service support and delivery, and are integral to maintaining a healthy bottom line. Software asset management, especially, has moved to the forefront as a means of complying with regulatory concerns such as Sarbanes-Oxley, and meeting the stringent audit requirements of software vendors and third parties such as the Business Software Alliance (BSA).

However, software license compliance is a tall order and recent data indicate that current approaches aren't sophisticated enough to meet the challenge. According to a recent Forrester report, conversations with clients who have implemented ITAM projects indicate that around one-third of these projects were unsuccessful; either they were one-off Y2K exercises that involved manual ITAM data collection that nobody wanted to maintain, or the necessary process and organization changes around the ITAM project were unsuccessful.[1]

There is a fundamental disconnect between what software is provisioned by the organization, and what actually ends up on users' PCs. Why this disconnect? Because despite enormous advances in software access management applications and processes, software provisioning remains tied to an inefficient paradigm of associating licenses with machines. Stuck in such a cycle, current practices can't account for the movement of employees around an organization, or provide any true

Figure 1 *Novell Identity Ma[illegible] [illegible] proces[illegible] users have immediate a[illegible] [illegible]. With role-based provisioning, resources are assigned to users [illegible] and policies. This diagram shows the high level architec[illegible] [illegible] system included with Identity Manager*

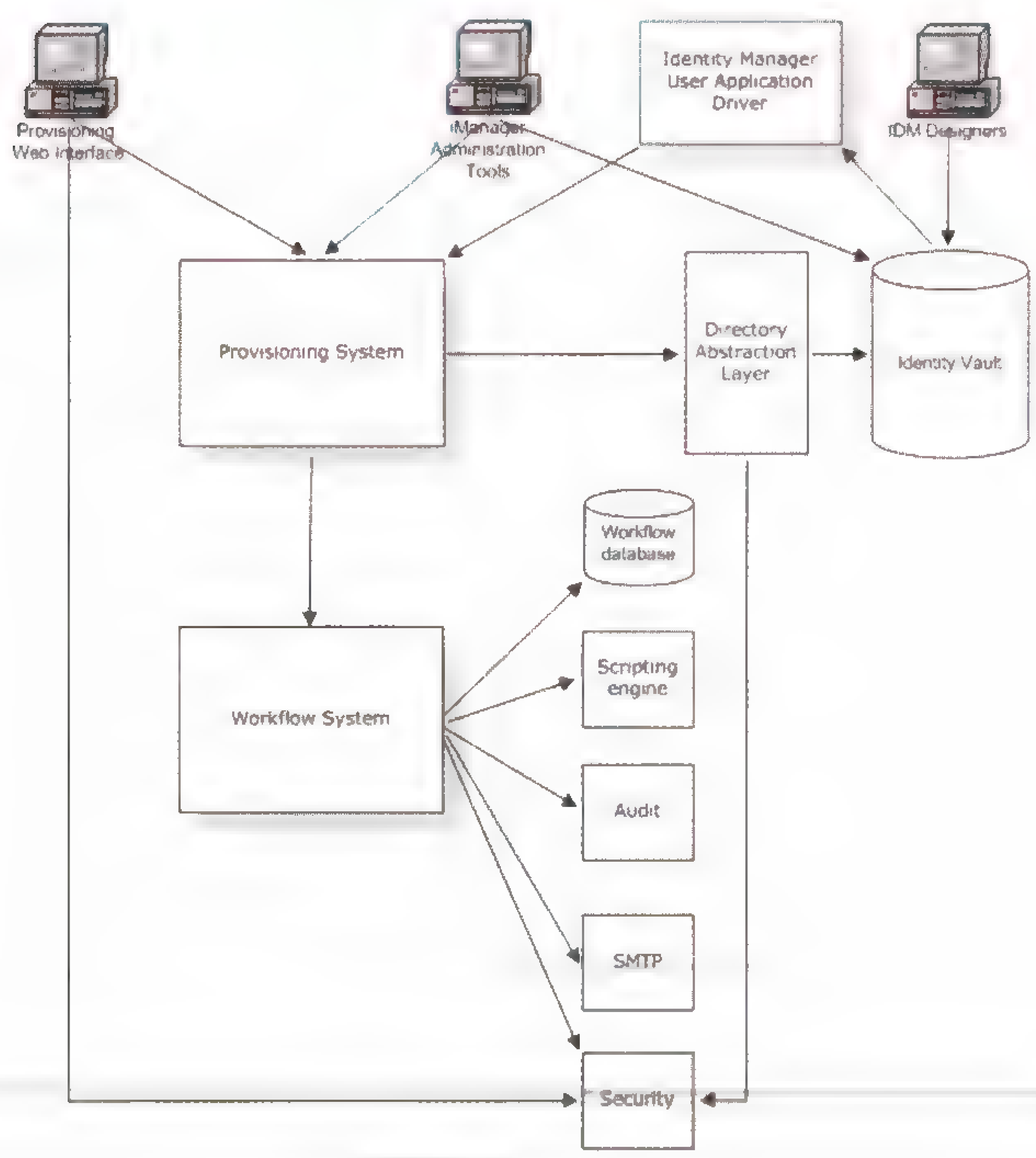
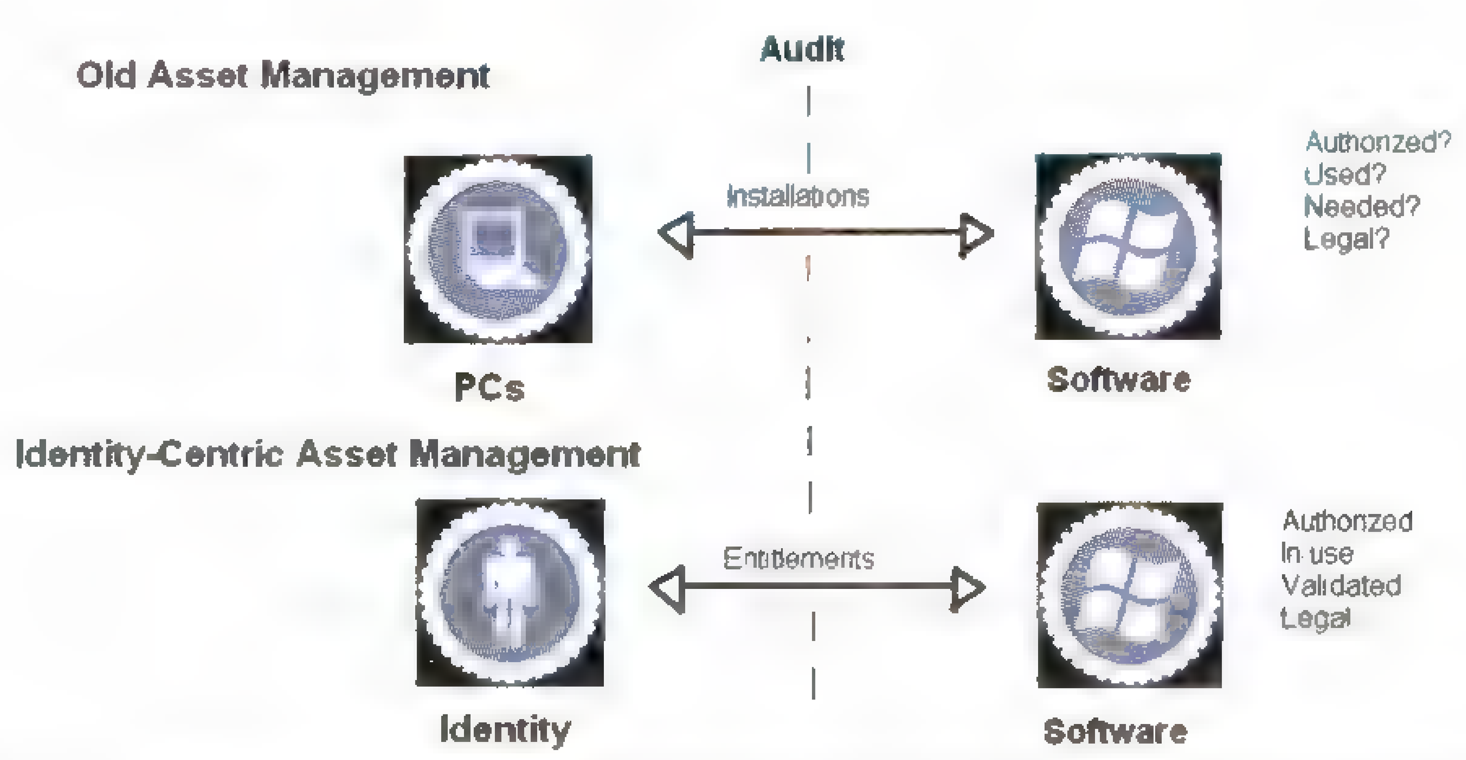


Figure 2 *[illegible] individuals. Where license installation [illegible] [illegible] now be tied to users as entitlements; software or [illegible] [illegible] and access to these entitlements, as well as their pr[illegible] [illegible] controlled. The end result is software that is authorized, in us[illegible]*



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insight into license usage versus license requirements, which places IT staff on constant fire watch. When it comes to ensuring license compliance, then software asset management remains as unevolved as before.

People, not PCs

IT departments are used to thinking in terms of nodes. Major technology purchases and contract negotiations, are most often based on the number of PCs residing within the company. On an abstract level, nodes translate to employees, but such a thought process is a major contributing factor to the failure of license-compliance initiatives.

Why? Because within this context, asking "How many PCs do I manage?" focuses disproportionate attention on machines, not the users behind them and forces IT staff back into perpetual inventory mode. If you could ask a slightly different question, though—"How many people work here?"—you can begin to shift the paradigm. Thinking in terms of human—not technology—resources enables you to also think in terms of entitlements, not license installations. Instead of inefficiently tracking PCs and their associated software, you can imagine tracking *employees* and their *needs*—a concept that forms the basis of a revolutionary new approach to IT asset management.

Identity-based IT Asset Management: Framing the Approach

The concept of identity based entitlements is nothing new. Enterprise security solutions such as Novell Identity Manager have embraced it as an industry standard in authentication for several years. (SEE FIGURE 1.) While an effective identity management program comprises a variety of interrelated components, which vary according to organizational needs and maturity, the common theme that glues the components together is *role-based access control*—that is, the process of assigning resource entitlements to individuals based upon their function(s) in the organization.

Borrowing from this approach, an identity based asset management program would shift attention *away* from hardware and *toward* individuals. Where licenses were once tied to machines, they would now be tied to users; software entitlements would be based on predetermined roles, and access to these entitlements—as well as their provisioning—would be centrally controlled. (SEE FIGURE 2.) Such an approach allows for much greater visibility of licensing across the organization, and more streamlined tracking and administration of compliance activities.

Essential components

Successfully implementing an identity based asset management program depends upon three key elements:

1 *A clear process, articulated across the organization, for defining specific user roles and the software required to successfully perform those roles*

Within the asset management realm, the main objective of role definition is simple: To provide the vehicle for associating software entitlements to people instead of machines. *How* you define and implement these roles doesn't matter; *why* you do it, on the other hand, does—for this is the crux of the paradigm shift. Remember that current approaches perpetuate the need to inventory machines and licenses, then reconcile the two; but a properly deployed role-based asset management system guarantees that what you own will always jive with what your users are entitled to.

What's more, under this model, software licenses become portable and hardware doesn't matter—at least in terms of compliance. Freed of concerns about what's installed where, you can finally move beyond counting machines and licenses, focusing instead on more strategic initiatives.

2 *A unified means of tracking users and their associated software entitlements*

Once you've defined organizational roles and their related software requirements, you need to keep a close handle on the information. A centralized repository enables a holistic view of entitlements across the enterprise, and serves as your definitive record of authorized licenses and their associated users. What this repository looks like depends entirely on your organization; regardless, it bears repeating that the repository must support the association of users—not machines—to entitlements, else the paradigm will fail.

3 *A way to prevent unauthorized "self-provisioning" of resources*

Finally, you need to ensure that, once provisioned, users can't access or install unauthorized software via unapproved purchase and download, or bringing in software from home, for example. Desktop lockdown—while admittedly unpopular with users—may be a simple first step. Centralized license management and control—closely tied to an official entitlement request and approval process—might be a more distant goal. Ultimately, access control should work in tandem with your entitlement repository to ensure that all roles and their associated licenses are consistently reconciled.

The Benefits

A well-planned, well-implemented identity-based asset management program leverages software license management activities into significant financial and productivity gains:

- Gives greater leverage in contract negotiations to prevent overpurchasing: license requirements are predefined, not based on trends.
- Frees IT staff for more strategic initiatives: licenses travel with people; no more wiping machines when employees change jobs or machines. Tighter control also eliminates unauthorized installations and the associated problems. For self-audits, simply compare inventory data with licenses in the central repository.
- Decreases the risk of noncompliance fines: you keep machines under tight control, reducing the likelihood of illegal software installations.
- Centralized control and tracking prevents unauthorized access and self provisioning.
- Entitlements follow people so additional license requests are limited to new hires or role changes.

Conclusion

Gartner forecasts, by 2008, 30 percent of large organizations will experience at least one onsite software audit per year.[2] With such a threat, IT and executive staff alike seek a bulletproof means of ensuring license compliance. Legacy approaches to software asset management have thus far prevented organizations from achieving this goal; unless asset management vendors and practitioners alike can make a paradigm shift, license compliance will remain a thorn in organizations' sides.

Because of its ability to tie roles to entitlements, track those associations and prevent unauthorized provisioning, an identity-based asset management process is far superior to existing license compliance initiatives. As interest in this concept grows, look to Novell—a leader in enterprise wide resource and identity management—to champion and develop the innovations to support it. **N**

[1] Source: Forrester Research Note: "IT Asset Management, Q3 2006," Peter O'Neill, 4 August 2006.
[2] Source: Gartner Research Note: "Prepare for Continued Software Audits in the Short Term," J. Disbrow and A. Bona, 11 January 2006

By Jeff Harris

drag n' drop

Getting the Full Impact from the Four Ds of Designer: Design, Develop, Document and Deploy

They say a picture is worth a thousand words, and in the complex world of Identity Management this maxim has never been more true. Novell Designer for Identity Manager (or just, Designer) is a powerful graphical environment that helps you visualize, architect, design and implement identity solutions based on Novell Identity Manager.

Implementing and managing an enterprise identity management infrastructure has never been a simple fix. After all, we're talking about facilitating secure and reliable communications between a myriad of participating systems, from data vaults, to back office databases, to applications, to end users. In fact, the complexity of the solution has prevented some from implementing the complete identity solution they need. And in today's information-driven world, that's a dangerous place to be.

Identity Management?

Identity is a critical component of most any online activity. Identity determines entry, access and content in almost all online transactions, whether inside or outside of an organization's firewall. Without confidence in your ability to properly identify a user, the whole concept of online security breaks down. And yet, today's complex computing environments involve sometimes hundreds of different touch points that require identity to properly manage access. Manually managing an identity environment such as this, while still providing a reasonable level of confidence, is simply impossible.

Novell Identity Manager (*novell.com/products/identitymanager*) simplifies the process of identity management. It provides automated user provisioning and password management; delivering first-day access to new users, modifying or rescinding access as necessary across all systems, and synchronizing multiple system passwords into a single strong password. Identity Manager controls user administration costs, eliminates complex manual processes, and enforces consistent security enterprise-wide—all while providing users access to the right resources to do their jobs.

Identity Manager abstracts a user's identity complexity away from the user and the help desk. This is of tremendous benefit since it improves security, increases productivity and reduces costs. Unfortunately, the underlying problem of complexity remains. Behind the scenes, System Administrators, IT architects and CIOs are still saddled with the increasingly difficult task of managing all these identity relationships. Designer is the next step in simplifying enterprise identity management.

Novell recently released Designer 1.2 as part of Identity Manager 3.0.1. It provides new and enhanced features, and delivers an even more robust development environment for your identity solutions.

So What is Designer?

Designer is a graphical design, implementation and documentation environment for Novell Identity Manager. It specifically addresses the needs of identity architects and consultants that are brought in to design and implement an organization's identity solution. It provides very granular control over an identity project, and delivers simplified tools that more efficiently move the project from inception, through design and implementation, to hand-off. This reduces time and costs associated with the project and provides a quicker return on investment.

Identity Management is a complex problem, and identity solutions that leverage Novell Identity Manager make heavy use of XML and data transformation languages. By abstracting this complexity away from the designer and implementer, Designer lets them focus on creating the very best identity solution rather than struggling with the details of the implementation.

"Designer is all about the four Ds: Design, Develop, Document, and Deploy", says Volker Scheuber of the Designer engineering team.

- **Design:** Designer is a one-stop design shop for Identity Manager solutions. It provides a variety of views for architects and designer's

Digging into Development

Designer represents a new type of development process at Novell. Known as Iterative Development, this process relies on fairly short (6–8 week) iterations during which new features are added, debugged and tested all at once. At the end of each iteration, the team produces a Milestone build of the product that incorporates all the additions of that iteration. The iteration schedule is an ongoing cycle, but every so often, as dictated by release schedules and other external events, a series of Milestone builds is rolled together to produce a version of the product that is ready to be shipped.

"This development process permits an unprecedented degree of customer involvement", said Bill Street, Engineering Manager for Novell's Designer team. "I really think this is the ideal way to do software development. It makes us validate early, and often, with our customers, and really helps us get it right." In fact, the Designer team provides customer access to its daily engineering builds (*novell.com/coolsolutions/dirxml/designer*) so they can participate in the development process, make comments and suggestions via the Novell bug tracking system, and even vote on feature importance to help the engineering team properly allocate its resources.

Novell Open Audio

Novell Open Audio

Podcasting to the People

By Nathan Conger

Open standards lower the barriers to innovation. This principle continues to prove itself in the real world. With the open standardization of the PC in the early eighties, many new concepts, technologies and ways of communicating sprung up and flourished. Open standards and open source have done the same thing for the Linux operating system, allowing many new players to contribute and innovate in a way that was previously not possible. Leveraging the open standards of TCP/IP and UDP, the Internet itself has given life to a host of new technologies and paradigms for collaborating and communicating.

Out of this primordial, open standards soup, a number of new technologies have emerged. Among them are Voice over IP, real time chat, blogs and podcasting. Building on RSS, BitTorrent and other open standards, podcasting delivers true time shifted, channel-based content to users. Podcasting has effectively lowered the barriers of both who can produce and consume audio, video and other content.

First appearing in 2003, the growth of podcasting is unprecedented. Today, iTunes lists more than 38,000 podcasts in a variety of categories, while the estimate for terrestrial radio stations is about 36,000 worldwide. The number of new podcasts is growing at the rate of 800 per week (*siliconrepublic.com/news/news.nv?storyid-single6194*). For more information, see the following four sites:

- *dopplerradio.net/2005/04/17/podcast numbers*
- *forrester.com ER Press Release 0.1769.996.00.html*
- *nevon.net/nevon/2005/02/business podcas.html*
- *nevon.net/nevon/2005/02/yet more_signs .html*

Novell Open Audio is a podcast that started in early 2006 under the direction of longtime Novell technology enthusiast Ted Haeger. Novell Connection *magazine interviewed Ted Haeger about Novell Open Audio and what other projects he is currently working on.*

Ted, let's start by having you tell us what Novell Open Audio is.

Novell Open Audio is essentially an audio program about Novell and SUSE Linux technology. We produce the program for people who want to get past the press releases and product announcements and find out more about what Novell is doing from the people who actually set the direction for and create Novell software. We offer it through the Novell Web site (*novell.com/openaudio*), but also as a subscribable podcast through the iTunes Podcasts directory or other podcast subscription portal. So people who want to take the program on the road with them, like on their commute or to the gym, they can easily have the show delivered to whatever portable audio player they use.

We also post upcoming interview topics, dates and people on the site. That way, if someone has a burning question they want to ask one of our guests, they can send us the question. We send out a Novell Open Audio t-shirt to people who give us questions. It's kind of a cool shirt. On the front it says "I ask tough questions." It's a great one to wear at BrainShare's "Meet the Experts" night.

What topics do you cover on the show?

A lot of the show's content focuses on Linux. That's partly because of Novell's strategic direction, but also because Linux is my current technology fascination. Linux is peculiar because it's technology that is heavily intertwined with a really strong culture. I think the culture is contagious. Somehow I've become one of the people who really believes that open source, centered around Linux, is fundamentally changing the whole IT industry.

For me, desktop Linux is where the rubber meets the road. I use Linux as my primary operating platform, and I'm amazed by the speed at which desktop Linux is technically advancing. That's why probably a third or more of the show's content covers stuff happening with the Linux desktop. It's my personal interest creeping in and influencing the show.

But Novell still has a huge portfolio of technology, and our listeners request topics from across the board. They keep me on track by constantly reminding me of what they want to hear.

How did the idea for Novell Open Audio come about?

The idea wasn't originally mine, I just inherited it. (That's how I get most of my good ideas.) A sharp guy whom I worked with when I was on the Novell Linux Desktop team told me, "We have to launch a podcast show, and you're going to host it." When he went off to another role, I inherited the project. So I get undue credit for the idea.

What background do you bring to the show?

I've always been a techie. Before working at Novell—was it really nine years ago?—I was a Certified Novell Instructor and Microsoft Certified Trainer. I pretty much was a geek who was lucky enough to find a job that allowed me to become an expert in some cool technology. In 1997, I joined Novell as a technical sales guy in the San Francisco Bay Area, and eventually moved into the Novell ZENworks product line, and later on to Novell eDirectory. Then

How can I ask questions or give feedback to Novell Open Audio?

Toll Free Number: 800-218-1400
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SkypeID: novellopenaudio

For more information or to have a Novell Representative contact you, please visit *novell.com/ncmconnect*.

define how to apply individual policies as data is synchronized between participating systems. (SEE FIGURE 2.)

Policies customize the flow of information into and out of Novell eDirectory for a particular environment. For example, one system's main user class might be User, while another's is OrgPerson. Policies let you identify this difference to make sure that user-related data is properly applied during data synchronization. Policies can also create new objects, update attribute values, make schema transformations, define matching criteria and maintain Novell Identity Manager associations, among many other things.

- **Workflow Designer:** Workflow Designer is an add-on plug-in for Designer that supports Identity Manager-based User Applications (White pages, Org charts, User search, etc.) and the Provisioning Module for Identity Manager, which offers initiation and monitoring of business-level workflows (cell phone request, expense reports, facilities request, etc.)

- **Directory Abstraction Layer Editor (DALE):** Related to the Workflow Designer, DALE lets you define directory abstraction layers used to create composite data objects that support the desired user application or provisioning task. Directory abstraction layers are a set of data definitions that provide a logical view of one or more Identity Vaults. DALE lets you change the abstraction layer's data definitions as needed to support the desired user application or provisioning workflow.

The descriptions above just scratch the surface of Designer's capabilities. To get the complete picture of Designer's capabilities, check out the Designer for Identity Manager documentation at *novell.com/documentation/designer12*.

Conclusion

Designer proves the old adage...a picture really is worth a thousand words...particularly when that picture gives you a clear idea of your identity solution. Designer clears away the clutter and complexity so you can focus on designing and implementing the solution, and not get caught up in the minutiae of the underlying protocols and technologies.

Novell Identity Manager is already the leading identity solution in the market, now Designer lets you leverage Identity Manager to create identity solutions more easily than ever before. And that's a picture you can spend some time admiring. N

The Bull's Eye

Based on user response, Designer is hitting its target of making identity design and deployment easier. Consider the following:

"Using Designer for Identity Manager has cut our development time for an Identity Management project almost in half. Drag and drop, wizards and features like document generation increased our "get-the-job-done" efficiency whereas features such as Simulation and Workflow Editor enable us to do things we could not do in the past. A customer was stunned when we showed them how easy it is to build customized workflows in Designer for Identity Manager. As a matter of fact, this customer, without any IT knowledge, is now building their own workflows." *(July 7, 2006)*

R.G.A. Epping
Se[illegible] Identity Management Co[illegible]sultant
Acuflex, The Ne[illegible]s

"Designer has really pushed our IDM practice further. Our discovery and design time has been shortened, we can develop more effectively with portable code wherever we need to be, our documentation is produced more completely, consistently, and in half the time, and we can provide post deployment support in almost real time from anywhere with only e-mail access. Designer has improved every phase of our IDM projects." *(March 24, 2006)*

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Novell Designer clears away the clutter and complexity so you can focus on designing and implementing the solution, and not get caught up in the minutiae of the underlying protocols and technologies.

including Identity Vaults, database servers, application servers and infrastructure servers.

Prior to Designer, Identity Manager relied solely on iManager plug-ins to provide the identity management interface. While iManager provides a Web-based, manage-from-anywhere, interface suitable for day-to-day administrative functions, it was not optimal for the design and modeling activities that are so crucial to a successful Identity Manager implementation. Designer complements Identity Manager's current iManager-based administrative options with a robust Integrated Design Environment (IDE) that you can carry with you for disconnected design, testing and documentation that is difficult or impossible with iManager.

How Does it All Work?

Designer is implemented as a series of plug ins (roughly 50) to the Eclipse framework (*eclipse.org*.) Eclipse is an open source project that provides an extensible development platform and application framework for building software tools. By using Eclipse, Novell is able to exploit existing platform support and integration technology, liberating itself to concentrate on Designer's core value rather than first reinventing the wheel. The Eclipse Platform is written in Java and comes with extensive plug in construction toolkits and examples. Designer leverages the Eclipse SWT Toolkit to provide native look and feel, and performance across both Linux and Windows platforms.

Designer's user interface is familiar and easy to navigate, and the Eclipse plug-ins provide a broad range of tools for interacting with the Identity Manager environment. (SEE FIGURE 1.) Among these are the following:

- **Modeler:** The modeler is Designer's primary work space. It is a visual editor from which you can design projects. It is your primary means of interacting with Designer. All other editors, views and dialog boxes support and provide functionality to the Modeler. To create a project, simply drag objects from the Palette into the Modeler. Then arrange and configure the project components as needed. Sounds easy, doesn't it. But we all know the devil is in the details.

- **Policy Builder:** The Policy Builder view lets you drill down on specific data flows in your identity solution. It provides a Policy Flow diagram from which you can display current data flows, and

Figure 1 *The Designer workspace gives you quick access to all the identity management design you need*

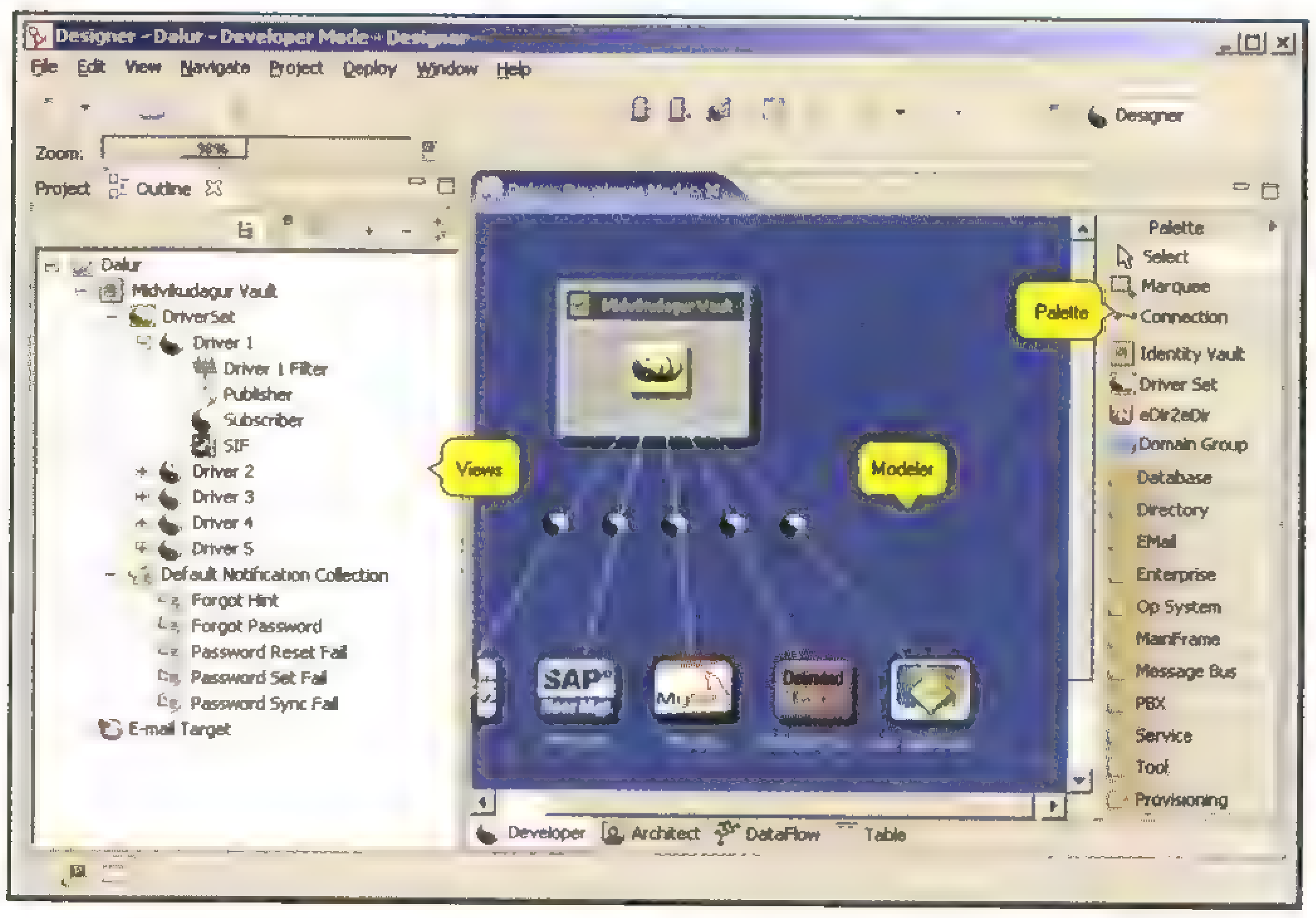
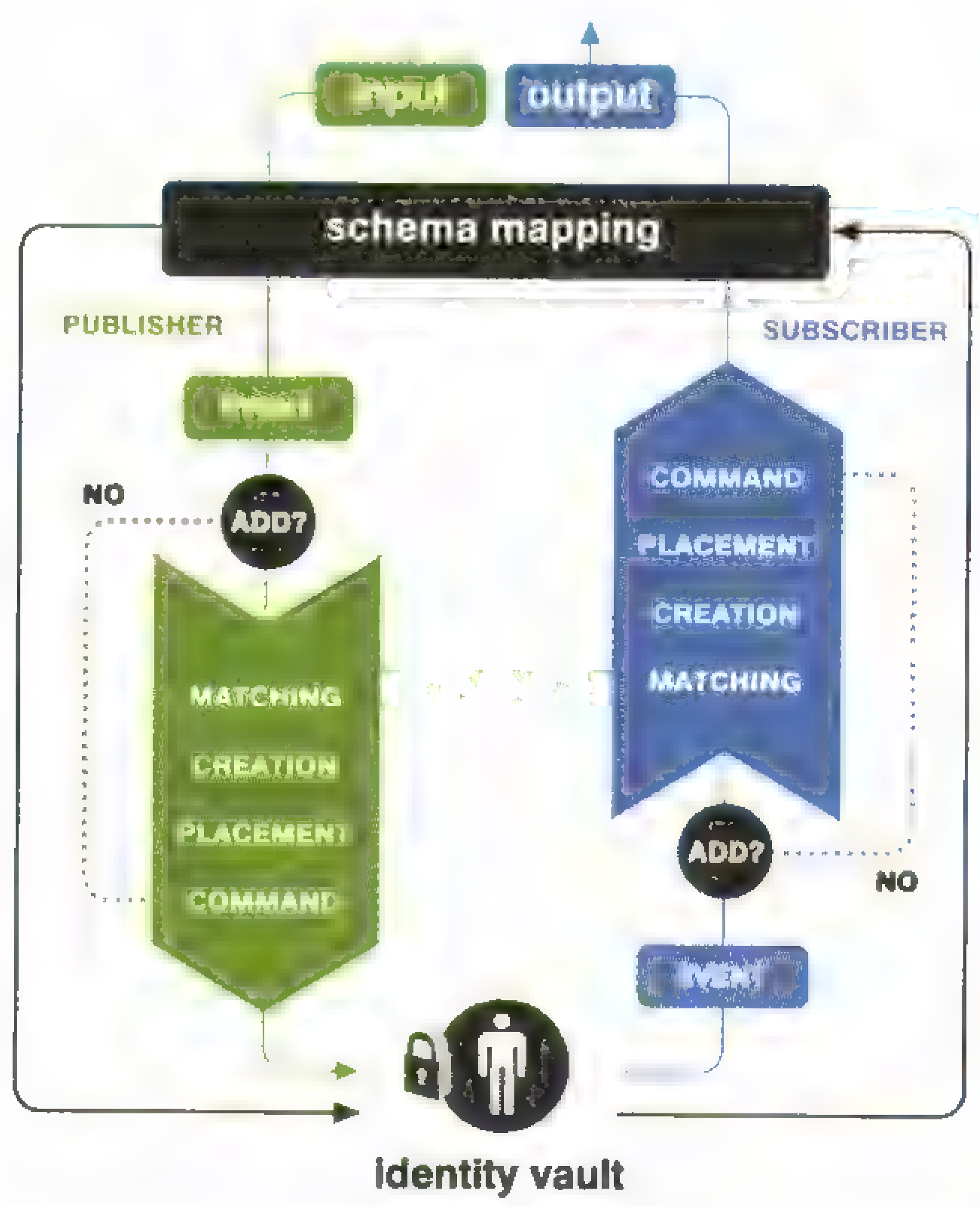


Figure 2 *Policy Builder lets you define data flow policies and visualize how they are applied*



For more information or to have a Novell Representative contact you, please visit novell.com/ncmconnect.

Novell Designer is a powerful graphical environment that helps you visualize, architect, design and implement identity solutions based on Novell Identity Manager.

that let them model and review every aspect of the solution. In fact, Designer provides robust Project Management capabilities, including simultaneous project development, packaging projects into zip files, e-mailing project files, incorporating project docs, such as spreadsheets, and importing/ exporting projects or project components.

- **Develop:** Designer provides tools for building the identity solution once it is designed. Configure drivers, filters and rules that implement the identity-related system communications you need. One of Designer's critical development features is its simulation and debugging tools, which let you put all, or any part of, an identity solution through its paces to make sure you are getting the desired results. All of this without connecting to a live environment.

- **Document:** Once an identity solution is ready for deployment, one of the most difficult tasks is to go back and document the solution configuration. Designer eliminates the effort by automating the solution's document creation. With the push of a button, you can create the documentation necessary to hand off the solution to those who will manage it on a day to-day basis. It is also an invaluable training resource.

- **Deploy:** Designer is not just a modeling environment, but when connected to your production environment, it can push the solution out to involved systems,

Designers by the Dozen

One interesting aspect of Designer for Identity Manager is how easy it is to apply this type of management solution to address other problems. Its very likely that Designer for Identity Manager will continue to sprout new functionality through the addition of new Eclipse plug-ins. In fact, work is already underway on a product that adds data validation and cleansing capabilities to Designer for Identity Manager.

And Designer may be destined for more than just Identity Manager. Because Designer is built on the Eclipse framework, there is no reason that additional "Designers" can't be built for other complex configuration and deployment scenarios.

Consider Novell ZENworks Suite, which provides robust management of network infrastructure. A ZENworks Designer could let you model and deploy resource management solutions using a similar methodology to that used by Identity Manager. Or how about an eDirectory Designer that lets you model and design a Novell eDirectory implementation, including replica design and placement, before installing a single server.

Although Novell hasn't committed to anything yet, its safe to say that Eclipse-based Designers may become more prevalent as a way to simplify the design, deployment and management of today's complex IT infrastructures.

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some Novell executive thought I would make a good marketing guy which I didn't and put me on the Novell Linux Desktop marketing team. Eventually, one of our current executives realized the mistake and moved me into a role as "Director of User Communities," which allows me to spearhead cool programs like Novell Open Audio, and get back to my geek roots. So, really this is my dream job: I get to talk to all the cool people who are driving Novell forward, and try to be something of a "technology ambassador" for the Novell User Community.

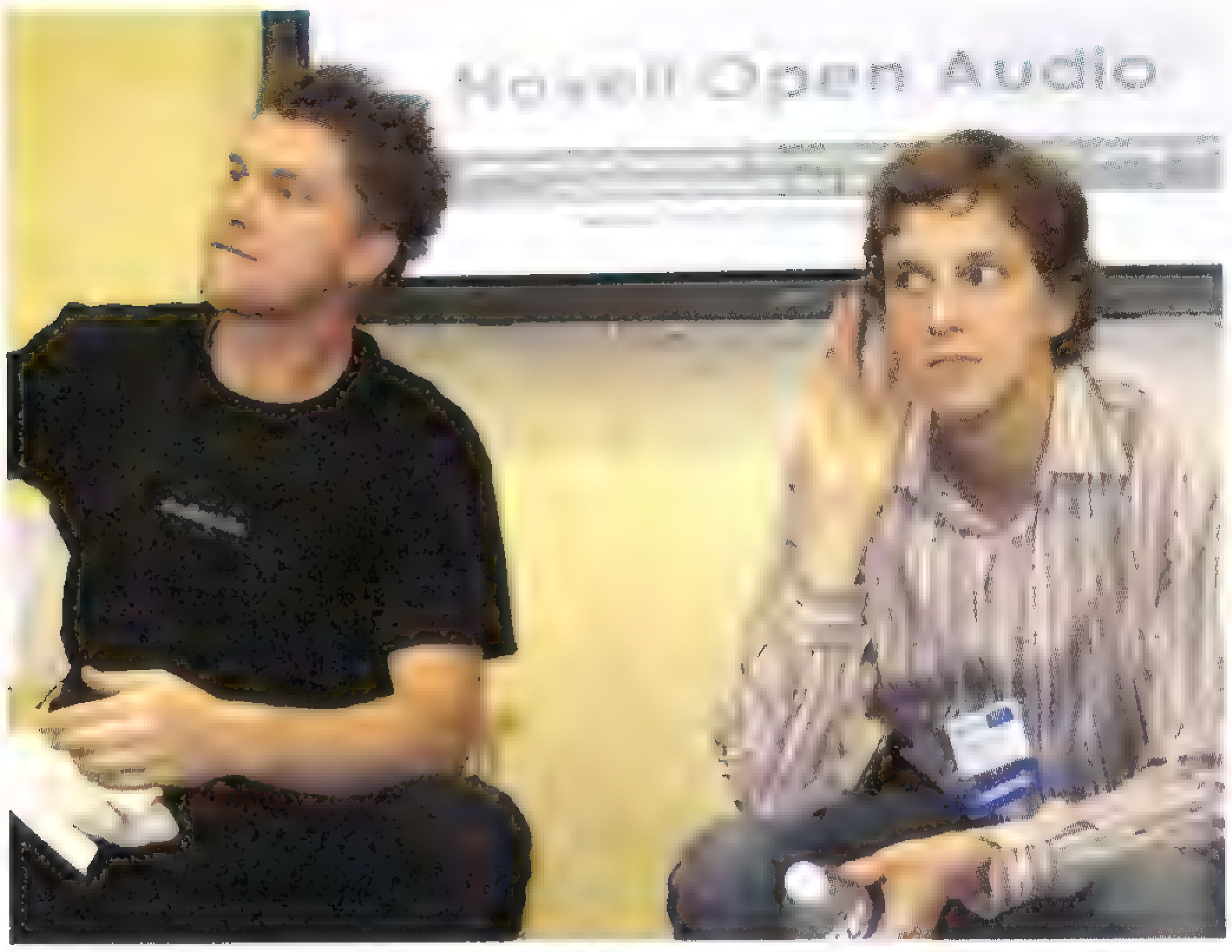
Are there any challenges in running a corporate podcast?
Do you want the whole list or just the top ten? Seriously, I find it's like walking a tightrope. To be credible in the medium, you have to keep the program real and fresh. Podcast listeners don't want to hear preplanned talking points and scripted dialogs. Novell has been really good at allowing me a huge amount of freedom in producing the show. I get to choose which topics to cover and how to cover them.

Balancing professionalism with keeping the show informal is a constant bugaboo for me. That and keeping the right level of technical content to satisfy listeners.

Also, a corporate podcast has certain constraints on being critical; that puts us in a weird position of sometimes sounding too much like we're doing rote marketing. Which is surprising, because of the heavy emphasis we put on talking to the people who make the software, not market it. (You can't do much "how to" instruction in an audio program.)

How has the show been received?
It's the most gratifying thing I have ever done at Novell. The listener feedback has been very positive—it's what keeps me going on the project. That's not to say that it's all positive, though. You have to have a pretty thick skin to weather some comments. Sometimes we release what we think is a really solid technical show, and someone will drop us a comment that they thought the show was just marketing fluff. Unfortunately, not enough of those comments include advice on "Here's what I wanted to hear about and what you can do to make it better next time." But overall, the show has gotten accolades from all over the world. A few listeners have even become unofficial coproducers—they send me news articles as fun items for us to cover on the show.

Figure 1 [illegible] Ted Haeger inte[illegible] Novell VP of Linux [illegible] during a live se[illegible] LinuxWorld Expo in [illegible]



Podcast Directories

It's great that all this content is out there, but how do I find what I'm looking for?
You can use a number of available podcast directories to subscribe. One of the easier methods is using the iTunes music player, which maintains a very extensive podcast directory. Other players maintain directories as well, including, WinAmp and MusicMatch. Some Web sites also list the top 10 podcasts and maintain their own directories, for example, *podcastalley.com*. Special interest sites also exist. *ITConversations.com* hosts a number podcasts on different IT topics including security and open source.

We want Novell Open Audio listeners and enthusiasts to get involved.
We're eager to play some listener voice mails on the air.
Leaving a voice mail is the easiest way to get a Novell Open Audio t-shirt right now.

Are you actually able to incorporate input like that? How much control over the show's content do you actually have?
That's one of the coolest things for me. I've been given pretty much complete editorial control over what goes in and what stays out, what topics we cover, and who we interview. That means however good or bad the show is, it's my fault.

Of course, I don't do it all by myself. Some Novell people have stepped up to act as correspondents for a lot of our interviews. Lee Howarth, Caitlin Jans and Erin Quill have been essential in giving life to the show. In fact, I bounce most of my ideas for the show off Erin. He's been instrumental in setting some of the direction of Novell Open Audio. Mike Pearson, our audio technician, also plays a big role. When something we do crosses the "way too dorky" line, Mike lets us know.

What do you mean?
Well, Mike will stop an interview and make us start again if the dialog sounds too stiff. Also, I tend to goof around a lot. Mike is a good judge of what's going to be funny and what's going to sound forced. He also tells us when we lose him on a topic like, if it sounds boring and needs to be pared down to keep it "listenable." Mike also clips out a lot of the dead air, ums and uhs—that kind of stuff—to keep the dialog crisp and keep the pace engaging. He helps us keep the technology talk interesting.

What's next for Novell Open Audio?
We're looking into launching a "Novell Open Video" site. I've been talking with Russ Dastrup, who makes the videos for Novell events like BrainShare, about vodcasting (video podcasting) various technology topics so we can actually show some of Novell's cool wares. I hope to have some of that online this Fall.

What would you say to current and potential Novell Open Audio listeners?
The biggest thing we want for Novell Open Audio is for it to be a program in which our listeners and enthusiasts can get involved. The one thing I have not gotten much of and that I really would really like to have is voice mails. We're eager to play some listener voice mails on the air, but so far everyone seems to want to keep it at the e-mail level. Maybe it's the threat of airplay that scares people away. But leaving a voice mail is the easiest way to get a Novell Open Audio t-shirt from us right now.

Voice mail or not, we're reading every comment and every e-mail we get from our listeners. Send more, and tell us what you want to hear about. N

Podcatchers: Podcast Clients

How do I subscribe to a podcast? How do I actually get the content? Many existing music players include podcast clients that allow you to subscribe to podcasts and automatically download content. On Windows, iTunes and WinAmp stand out. On Linux, Amarok has full support for podcasts with support coming soon in Banshee. Of course, iTunes is the client of choice on Macs as well. Subscribing to a podcast using, for example, iTunes, will automatically update the podcast content on your computer or portable music player each time you launch iTunes.

There are also a variety of stand alone podcast clients (or aggregators) available. Among the most popular are iPodder, PodNova and Juice. Lesser known clients such as monopod work very well on the Linux Gnome Desktop.

So, to subscribe to Novell Open Audio using iTunes, for example, simply launch iTunes, click on Podcasts in the left nav menu. Then click Podcast Directory at the bottom and search for Novell Open Audio. Then click the Novell Open Audio podcast listing and click the Subscribe button. It's really that easy.

Regardless, if you don't have a portable audio player and don't want to shell out a couple hundred bucks to get one, don't worry. You're not left out in the cold. Just listen to the podcasts on your computer.

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How's Your Memory?

The Don't-Call Defrag

By Kathryn Jenkins

If you're steeped in the world of technology, memory has specific meaning for you: it's your system's ability to store the data you give it. We're all over that kind of memory, and in this issue we give you tips on how to avoid memory fragmentation - a nasty situation that occurs when your server has plenty of memory space, but can't process your requests.

Now think back to the days before you were steeped in technology—*memory* referred to your ability to remember important information (okay, maybe not-so-important information!). This month we give you some important stuff to commit to memory about how to manage those servers. We also have some great tips and tricks to help you resolve issues with GroupWise without resorting to technical support.

> Memory Fragmentation: Are You At Risk?

As a 32-bit operating system, NetWare can handle as much as 64 GB of physical RAM. Sounds great, right? But just because NetWare can handle that much memory doesn't mean your system will have that much memory to work with. Here's why:

Intel's 32-bit architecture limits any operating system to a 4-GB area in which logical memory can be mapped. Any memory that exceeds 4 GB must be accessed by mapping pages in and out of the 4 GB space.

Logical memory fragmentation occurs when the server has plenty of available logical mapping space for memory, but not in large enough chunks to grant a memory request. In other words, there could be 500 MB available, but if an NLM requested an allocation of 2 MB and the largest available size was 150 KB, the request would fail. The result? The server's memory is fragmented and the NLM would not run correctly.

Here's what that means to you: since most applications run in the "kernel space" or "ring 0" in NetWare—as opposed to "user space" or "ring 3" in other operating systems—all NLMs running in the kernel have a finite amount of RAM to work with. As a result, you might have to adjust the settings on your servers to reduce the number and frequency of memory problems, depending on the applications and NLMs you have running on the server.

There is an option: NetWare 6.5 Support Pack 5 with the added update NW65OS5A.EXE contains the latest fixes and updates you'll need to address memory fragmentation.

> Identifying Memory Fragmentation on a NetWare Server

Novell makes it easy for you to identify logical memory fragmentation on your NetWare server—simply use the statistics available through the Novell Remote Manager (NRM). Here's how:

1 Open your browser and go to the server's IP address: 8008.
2 You will be asked for a username and password; log in as Admin.
3 Click View Memory Config.
4 Scroll down to the Logical Address Space section.
5 Note the value for "Fragmented Kernel Space."

You can also look at the red block on the graph, which shows the percentage of fragmentation. If the value (or block on the graph) remains steady over a period of several hours or several days—even if the percentage is as high as 50 percent—you don't need to tune your server. Steady numbers mean your server isn't compromised by fragmentation of logical memory.

If the value increases over time, or the red block on the graph steadily grows bigger, you should tune your server. I'll show you how.

> A Quick Aside: Diagnosing Memory Problems

Before you learn how to tune your server, you should be aware that fragmentation isn't the only memory problem you can have on a server. For example, any NLM on the server could "leak" memory—a problem generally caused by a module that allocates memory but then never returns it to the system. In other words, allocated memory is never freed up again once it should be available. As another example, a module might allocate an unnecessarily large amount of memory either by design or because of miscalculation.

Both of these situations will result in a dramatic decrease in the amount of memory available on your NetWare server. Both will also result in a steady decrease in the number of cache buffers reported in a Monitor.nlm. And both are clearly a problem, though neither is due to memory fragmentation.

The NRM utility is the best way to diagnose a memory problem. Under the Manage Applications heading, click **List Modules**. A list of all the NLMs running on the server will display, along with the amount of memory each NLM is using, broken down into different categories and sorted by how much memory each is using. If you see a module steadily climbing the list, suspect a memory leak.

If you think your server is leaking memory, make sure you have the latest version of the NLM. If that doesn't resolve the issue, contact Novell Technical Support for more help.

> Tuning Your Server to Prevent Memory Fragmentation

In just five simple steps, you can tune your server to address issues around memory fragmentation. These five steps address every possible factor that can contribute to or aggravate memory fragmentation—and you might not have to use all five. Try each one, in the order listed.

1 Update Your Server
To begin, install the latest NetWare Support Pack on your server; the support pack includes all the fixes and updates for memory fragmentation issues. If you are running NetWare 6.5 Support Pack 5, install the NW65OS5A.EXE update. Once you've installed the support pack and the update, you should not have any additional problems with memory fragmentation. Depending on the amount of memory on your server, you may need to adjust settings as described in the next three steps.

2 Reload the TSAFS Modules
There can be limits to the amount of cache the TSAFS module requests. To resolve any issues, unload the TSAFS.NLM module, then reload it with the following command-line switch:

```
load tsafs/cachememorythreshold=1
```

The command line switch specifies the percentage of the server's free memory that will be used by the TSAFS at run time. For example, if your server has 4 GB of RAM installed, the 1 in the command-line switch means the TSAFS call will allocate and use 1 percent, or as much as 40 MB of RAM.

3 Set a Hard Limit on How Much RAM DS.NLM Uses
If the DS.NLM consumes a large percentage of the RAM on your server, or if it uses more than 500 MB of RAM, you'll need to restrict how much memory eDirectory can use. To do this, install eDirectory 8.7.3.3 or later; earlier versions might not retain the hard limit settings.

Basically, you can turn off the dynamic caching ability of DS.NLM, then hard set the DS RAM to start at two times the database size. Especially do this if your database size is less than 500 MB.
The following technical information documents, or TIDs, describe how to hard set the amount of RAM eDirectory can use:

- *http://support.novell.com/cgi-bin/search/searchtid.cgi?/10096642.htm*
- *http://support.novell.com/cgi bin/search/searchtid.cgi?/10060669.htm*
- *http: support.novell.com cgi bin/search/searchtid.cgi? 10094467.htm*
- *http://support.novell.com/cgi-bin/search/searchtid.cgi?/10097143.htm*

4 Set the File Cache Maximum Size Parameter
The hidden set parameter that determines the file cache maximum allows you to adjust the size of the logical memory spaces. With NetWare 6.5 Support Pack 5, use the following setting:

SET file cache maximum size=2147483648

Count carefully and make sure you've entered a total of 10 digits—just 1 extra or missing digit will make a huge difference.
Note: If your server has less than 1 GB of RAM, you don't need to set this parameter.

Reboot Your Server
At this point, reboot your server and let it run for a few days or weeks; if possible, let it run through a cycle or two of peak user activity and a couple of automatic backup jobs. In most cases, fragmentation of logical memory will be resolved with the four steps described above. If you're still having problems, use the two parts of the next step, one at a time, to make the final adjustments.

5 Adjust the Size of the User Address Space
If you are still experiencing memory fragmentation problems, alter the default size used for the User Address Space.
Note: This step should be taken ONLY while the server is having problems, not when it is running smoothly or has been recently rebooted.

To alter the default, use a server startup command-line switch issued from the DOS prompt or added to the Autoexec.bat line that loads the server. Use "server -u<number of bytes for User Address Space size>" to give the memory configuration just what the server needs for the User Address Space—and no more. *Be extremely careful with this setting.* Count the digits in the number you provide the switch, and then double check the number. If you slip up and designate a number that is too low, CPU utilization will be high, and programs either won't load or won't run correctly in protected memory.

To access the feature, take the following steps:
1 Open NRM and log in as Admin.
2 Click View Memory Config in the left pane of the main window.
3 Click Tune Logical Access Space.
4 A screen will open and display configuration recommendations provided by the Novell kernel developers specific to your server's running condition.
5 Make the recommended change, with the -u setting for server.exe (server u<number>).
If your server has less than 3 GB of RAM, do not use this setting.

> Still Having Problems?

The five steps outlined above will take care of the most common factors that cause or aggravate memory fragmentation. If you're one of the rare exceptions, you might notice that the memory on your server steadily declines over the next month and that you have to keep rebooting your server, even though you followed these steps. If that's the case, your memory fragmentation problems have not been resolved.

What now?

Closely inspect your server to find out how much memory your NLMs are using. You might find that the NLMs are using more memory than the logical mapping size, and as a result, the NLM Address Space will borrow memory from the File System Address Space, causing a slow but steady decline in memory.

In virtually all cases, you'll fix the problem if you control the memory NLMs can use in the cache pool. Steps 2 and 3 above show two effective ways to control the memory used by specific NLMs. You might have to scrutinize other modules that are loaded on your NetWare server either from Novell or from third parties and adjust how much memory they are consuming on the server. To adjust and monitor memory consumption over time on a per-module basis, use the Novell Remote Manager (Module Listing) or other tools.

If you're still having problems or need additional answers, please contact Novell Technical Support.

> Maybe It's Your Application...

If you've applied the latest code and followed these steps, your memory issues might have nothing to do with your operating system—and everything to do with the applications that are running on your NetWare server.

To determine whether that might be your problem, check out the following documents (in TID format), which outline some of the most commonly reported issues:

- *http://support.novell.com/cgi bin/search/searchtid.cgi?/10058100.htm*
- *http://support.novell.com/cgi bin/search/searchtid.cgi?/10090829.htm*
- *http://support.novell.com/cgi-bin/search/searchtid.cgi?/10100212.htm*

Remember: your memory problems might be due to backup vendors, content vendors and other NLMs running on your server. It's critical that you identify the NLM where the memory problem exists and then contact the vendor that owns the module for a fix. To repeat: install the latest support pack and the updated patch from Novell. And, rest assured, Novell is continuing to make additional improvements in NetWare's memory management system to better

For more information or to have a Novell Representative contact you, please visit *novell.com/ncmconnect.*

accommodate the newest hardware configurations and the various combinations of modules you might be running on your server!

> GroupWise? Help Without the Support Call

You've come to appreciate GroupWise 7.0 as one of the premiere collaborative tools on the market. And if you've used Novell Technical Support engineers to resolve any GroupWise issues, you know how good they are, too.

From a support engineer's point of view, there's much to be said about the efficacy of a collaborative support tool, especially one that is easily leveraged by small businesses and enterprise concerns alike. GroupWise 7.0 is such a tool. Because they work with all types of configurations, support engineers wear plenty of hats, and they do it very successfully—even though one may have top-notch technical skills while another is more customer-savvy. They strive to resolve the customer, then the issue, and while the two mesh perfectly most of the time, occasionally they have to reconcile the needs of the software with the needs of the customer, which gives them a unique perspective on the product and the issues that cause support calls.

That said, they have some ideas on how you can troubleshoot many of your own issues without having to make a call. How would you like to save time and money by being able to check out some engineer-recommended documents, then do the troubleshooting on your own?

Then read on! The GroupWise support team has come up with a set of suggestions that will help you bypass the possible "gotchas" and points of failure that, despite every effort, appear in a small percentage of installations, upgrades and migrations. (Before you read this, they'd like to point out that they are acutely aware and respect the fact that some of you are far more skilled than some of them!) Ready? Here's what you can do *before* picking up the phone:

MAPI—Document Integration and Management

GroupWise 7.0 has moved away from the old Windows Messaging System. If you have Microsoft Outlook 2003, GroupWise 7.0 can use that MAPI. Check out the following TIDs:

- 10100406 – Getting Your MAPI Application to Work After Upgrading to the GroupWise 7 Client
- 10100675 – MAPI Services Dialogue Error

Many proprietary applications currently use MAPI to send information to the GroupWise client; an internal list of these applications is being modified as MAPI incompatibilities are addressed. As of the release of SP1, all (or nearly all) known MAPI complications have been addressed. I know I said you wouldn't have to call—but make sure you report any new issues to Novell Technical Support.

> Linux—Open Enterprise Server and SUSE Linux Enterprise Server

As Novell increases its presence in the open source community, many of its solutions are finding a place in the Linux world—including GroupWise, which currently runs well on Linux. The migration is becoming steadily more robust, and initial quirks have almost all been remedied. At BrainShare, Novell announced the GroupWise Migration Utility, which makes it much easier to migrate from NetWare or Windows to Linux. Until that product is available in mid October, check out the following TIDs:

- 10099946 – Moving a Post Office to Linux
- 10099947 – Moving a Domain to Linux
- 10101095 – Documents Inaccessible After Move from NetWare to Linux
- 10100048 – POA, MTA and GWIA Becomes Unresponsive After SUSE Linux Enterprise Server SP3 Update

Note: GroupWise 7.0.1 has alleviated most of this, but the backrev may be a necessary step in certain types of troubleshooting.

> Clustering

The robustness of GroupWise 7.0 in a shared resource environment has greatly improved. In both Linux and NetWare, GroupWise is basically an application residing and performing its actions in a memory space making the main issue the ability of the resource to failover from one node to another while maintaining memory space. While that ability is fairly stable, there are some considerations around GroupWise clustering in native Linux file systems. For help, check out the documentation at *novell.com/documentation/gw7/index.html.*

Note: Native Linux file systems house GroupWise well in a cluster, but some stability issues exist in some scenarios. Novell is investigating these scenarios.

> GroupWise WebAccess

GroupWise WebAccess 7.0, which has a slightly different interface and home page, uses Tomcat 4 in NetWare and Tomcat 5 in Windows. Access *https://<server_ip>/gw*. Note that WebAccess can't utilize secure communications via Public/Private keys; only the online client can.

> GroupWise Internet Agent (GWIA)

While it is lacks some features, changes to the GWIA have made it robust in most ways and have maintained its compliance with increasingly stringent security protocols that guard today's mail gateways, including SPAM filters. Just remember: GWIA is not intended for use as a firewall or a relay host, just as GroupWise itself is not meant to be a content management system. GroupWise 7.0 allows for more control than what was available through the Access Control List and the Mailer Daemon, but that control is collaborative when used in conjunction with SPAM filters and/or firewalls. Check out these TIDs:

- 10100683 – Rule generated Messages Don't Deliver to Recipients Properly
- 10099640 – GWIA Abends the Server When Loaded or Unloaded

> Backup

The previous method, TSA600.NLM, GWTSA.NLM, is no longer a supported configuration. Instead, use TSAFS.NLM, TSAFSGW.NLM. (While it is supported, TSAFSGW.NLM has some kinks that affect how it works with the GroupWise 7.0 GWENN5.NLM). Check out the following TID:

- 10095865 – It is not necessary to use the TSAFSGW.NLM at any time. A full backup can be garnered by using TSAFS.NLM with the `/enablegw=yes` switch in the TSA.CFG.

> GroupWise Archive

Novell's current archive structure is robust, but only in a general way. It is difficult to centrally store archived data and maintain its integrity over a number of years, especially in today's environment, where many companies might need to work together to maintain historical collaboration. That's not all: large post offices of more than 100 GB get difficult to back up, maintain and restore.

Remember: As the size and age of your GroupWise stored messages increases, so does the chance for failure. If your system is left too big for too long, without systematic efforts at cleaning and maintenance, you risk the loss of valuable data.

If you need to maintain vast amounts of data in nearline storage, there are reasonably priced third-party applications that can both store GroupWise historical data and easily restore it as needed. N

VoiceRD

Telephony Integration with Customer Relationships and Enterprise Collaboration

In the IT world, we've always had to "do more with less," and often do it faster. In the world of voice, this means VoIP, or Voice Over IP. VoIP is the transmission of voice over standard network systems, including the Internet. VoIP serves two business needs: take advantage of new applications, and reduce costs by using existing networks. An added benefit is extensive connectivity and mobility.

VoiceRD provides a complete open source VoIP solution. VoiceRD is the rapid deployment of a fully featured open source PBX. It reduces telephony related operating costs while providing more features, connections and integration than traditional VoIP offerings. The open source community is rapidly developing and integrating new applications into VoiceRD.

The software is based on Asterisk open source PBX software, SUSE Linux, Novell eDirectory, Novell Identity Manager and AppArmor. It runs on an appliance, or a low-cost hardened HP server where all unnecessary operating system services are eliminated to increase security. It runs hassle-free and securely, and integrates into virtually any IT infrastructure, large or small.

> Components

VoiceRD partners with HP, Novell and Digium to create the solution. A combination of open source and proprietary code connects a full set of telephony functions to SugarCRM for customer relations and to Alfresco for enterprise content management (ECM).

At the bottom of the stack is a hardened HP hardware appliance. You can choose from two models. Model 1 handles up to 150 handsets, and Model 2 handles anything above that. Each scales to support trunks and connections. Telephony cards from Digium support digital (T1) and analog (POTS) connections. The hardware is fully supported by HP.

On top of the hardware appliance is a completely integrated software appliance you can purchase separately. The operating system is SUSE Linux Enterprise Server 10 from Novell. Bundled with the OS is AppArmor from Novell, the open source security framework that creates mandatory access control for programs.

The telephony platform is Asterisk, an open source VoIP PBX. (For a full list of telephony functions in Asterisk, see *asterisk.org*.) Asterisk includes call conferencing (bridging) and call center functions, such as call queuing. The appliance also has a Web management tool to run all of the system and user operations.

You can add identity management licenses to provision the extensions directly from the network directory services (eDirectory or ADS) or other authoritative user source. Provisioning includes voicemail, user conference center for call bridging, and the configuration of individual

Figure 1 Configuring voicemail for a user with optional settings for call recording and notification

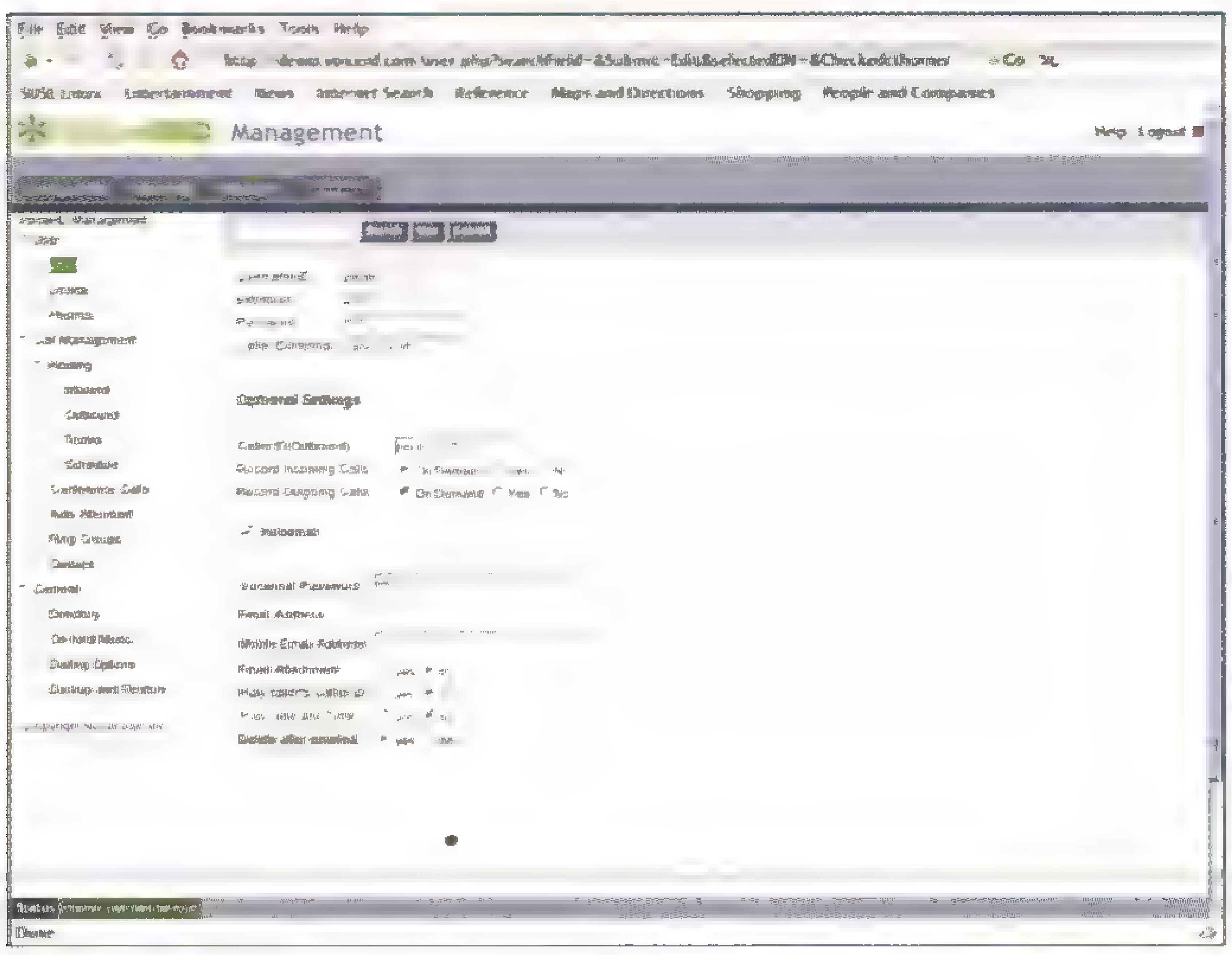
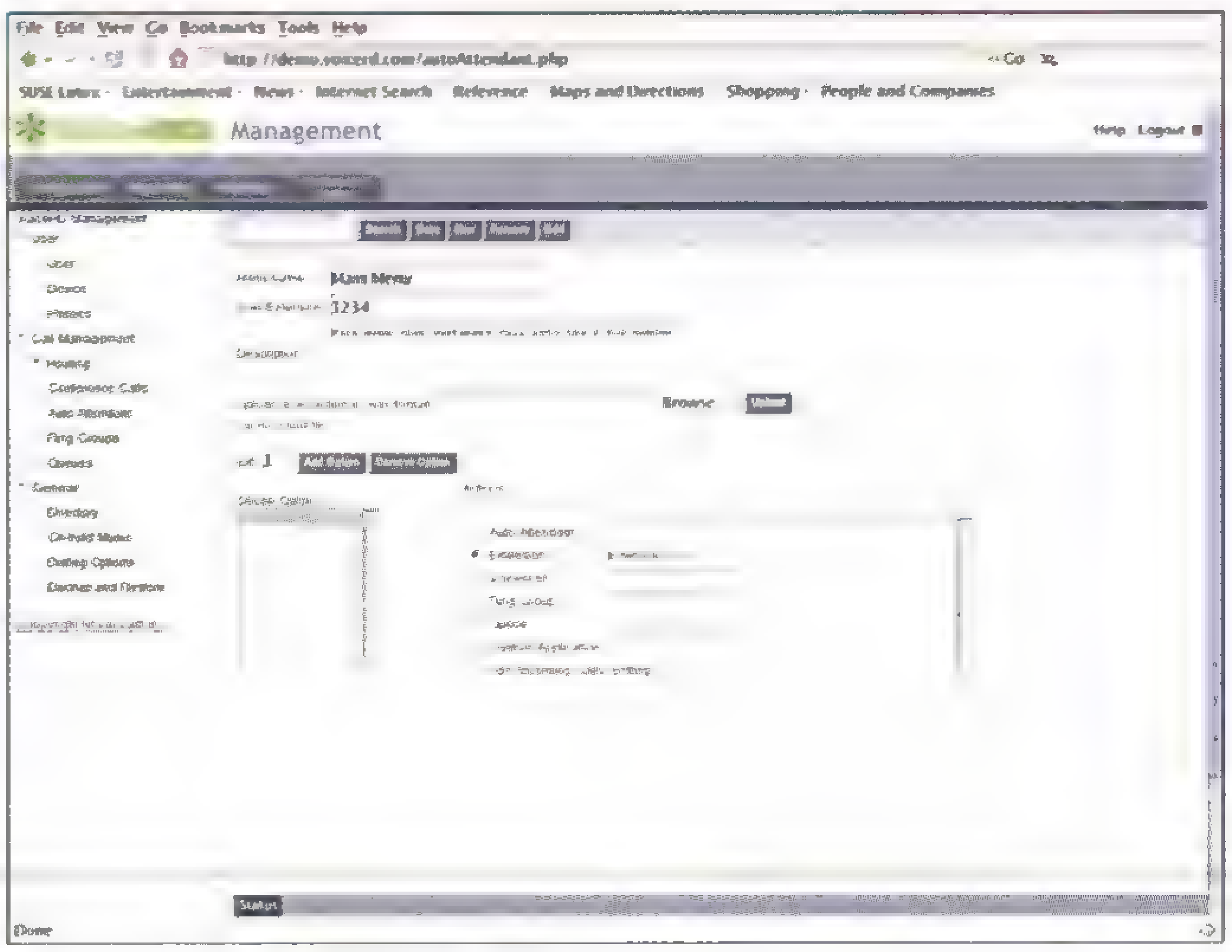


Figure 2 Configuring interactive voice response (auto-attendant)



For more information or to download a trial, please visit voicerd.com.

VoiceRD
Open Source VoIP. More for Less. Faster.

user handsets. All adds, changes and deletions are managed from the directory services interface, which can be either iManager or a neutral graphical interface.

It works with today's hardware, protocols and applications, yet was designed to be flexible so it can grow as your enterprise needs change. You can also get a soft appliance, which consists of all software, including the OS and OEM licenses.

> Rapid Deployment

VoiceRD is based on fixed price, limited engagements with specific added value. An example is a multisite or international deployment where all servers and extensions are integrated and networked. In this example, VoiceRD proceeds through four phases:

- **Phase 1: Assessment and design** considers the entire project, including all sites, protocols, hardware, features and applications.
- **Phase 2: Preimplementation** moves from comprehensive design to a limited scope of, say, specific geographic implementation.
- **Phase 3: Implementation** implements the limited scope.
- **Phase 4: Training and support** obviously trains and supports staff.

The layered support is as complete as the list of voice functions. The base code is SUSE Linux and Asterisk. Both platforms are supported by a global open source community. Innovation and bug fixes happen at warp speed compared to traditional development models. Novell develops SUSE Linux Enterprise Server 9 and prepares it for the enterprise. The Asterisk community develops the telephony code and VoiceRD prepares it for application. Novell Technical Services provides 24/7 support, so support is a single call.

> Application Integration

Integration continues up the stack. Far from a mere VoIP system, VoiceRD integration can be mixed or matched into three key application arenas:

- customer relationship management (CRM)
- enterprise content management (ECM)
- enterprise messaging

SugarCRM is the CRM component and Alfresco is the ECM component. Both are built upon the model of commercial open source. A global community of programmers writes the code. Additional code and support can be purchased on top of what is downloadable and used for free. It is fast, quality development with dedicated support.

Novell GroupWise on Linux is the third arena. It is a complete collaboration software solution that provides e-mail, calendaring, instant messaging and task management. VoiceRD integrates voice functions with all three.

For example, in a sales driven scenario, all integration functions happen in Sugar, the CRM module. Outbound phone calls originate from within a contact record in Sugar. You click a phone icon to dial the contact's number. When the user picks up the receiver, the voice session begins. The date, time and duration of the call are recorded in the client's record.

The call itself can also be recorded in Alfresco, outside of Sugar, with access from the contact's record. All recorded voice calls are stored and indexed and made available to the enterprise work flow rules found in Alfresco. You can turn any conversation into a voice object managed by the ECM.

Actions in Sugar also drive events in Novell GroupWise. An outbound call initiated from within a contact record in Sugar can, at the caller's discretion, schedule a future call. When the call is scheduled, VoiceRD integration creates a GroupWise appointment. If you've implemented BlackBerry support for GroupWise, it can deliver an alarm to the BlackBerry device.

Voicemail is also integrated with GroupWise. As voicemails are left, a message is sent to the user's GroupWise Inbox. The caller ID is in the message body, along with the time, date, length and a link to an audio file (WAV). The voicemail can then be forwarded through GroupWise internally, or stored in Alfresco.

VoiceRD is fully integrated up and down the complete stack: hardware; operating systems and security; a PBX appliance; and lateral integration with customer management, enterprise collaboration and complete content management. N

VoiceRD
Open Source VoIP. More for Less. Faster.

Elegant Integration

VoiceRD integrates voice and data with enterprise applications such as

GroupWise
SugarCRM
Alfresco

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Anatomy of an Open Enterprise

A Sensible Open Source Solution Case Study

by Todd Swensen

If you own or work for a small or medium sized business, you've almost certainly explored open source as a way to reduce software licensing fees, avoid expensive vendor lock-in, and lower hardware costs. Those are, after all, the standard open source benefits you hear and read about over and over again. But it's important to understand that cost is only the first chapter in a much larger and richer open source story.

Yes, Linux and open source can almost certainly lower your IT costs. But if you approach the open source movement correctly, it can also open the door to sophisticated new kinds of solutions that were previously only available to very large enterprises—and allow you to deploy these kinds of solutions much more quickly and inexpensively than you ever thought possible.

In other words, open source can actually erase the barriers and boundaries between the kinds of technology solutions available to your small or medium-sized business—and those available to your largest multi-billion dollar competitors.

Novell has given this larger, richer open source story a name. It's called the Open Enterprise. And Novell is working nonstop to make the advantages of the Open Enterprise realistic and practical for all types and sizes of business. Of course, the model for developing Open Enterprise solutions looks much different than that of a typical proprietary solution. Open Enterprise solutions can start virtually anywhere—from the mind of a consultant working for a small solution provider to the in-house IT department of a medium-sized retailer.

The development process is organic and collaborative, typically involving many different commercial and open source vendors and the larger open source community. And the solutions tend to be more flexible and adaptable, because they're based on standard code and open, freely available APIs.

This open source model does a wonderful job of turning great ideas into working solutions, but it also creates some interesting challenges. How do you turn these organic, collaborative efforts into commercially viable software solutions? How do you make a solution developed by a small solution provider with limited marketing resources available to a wider audience? And how can you know an Open Enterprise solution has been thoroughly tested and meets your high standards for quality?

Fortunately, innovative new processes and programs are emerging to address these questions. These programs harness the remarkable innovation that's taking place in the open source community, make open source solutions commercially viable and provide resources to help bring them successfully to market.

To demonstrate how the whole process actually works, it's useful to look at a real, concrete example. So let's highlight the efforts of a small, but successful IT services company named Novacoast, and take a close look at how they're working with Novell to develop, market and sell a successful Open Enterprise solution.

> Introducing VoiceRD from Novacoast

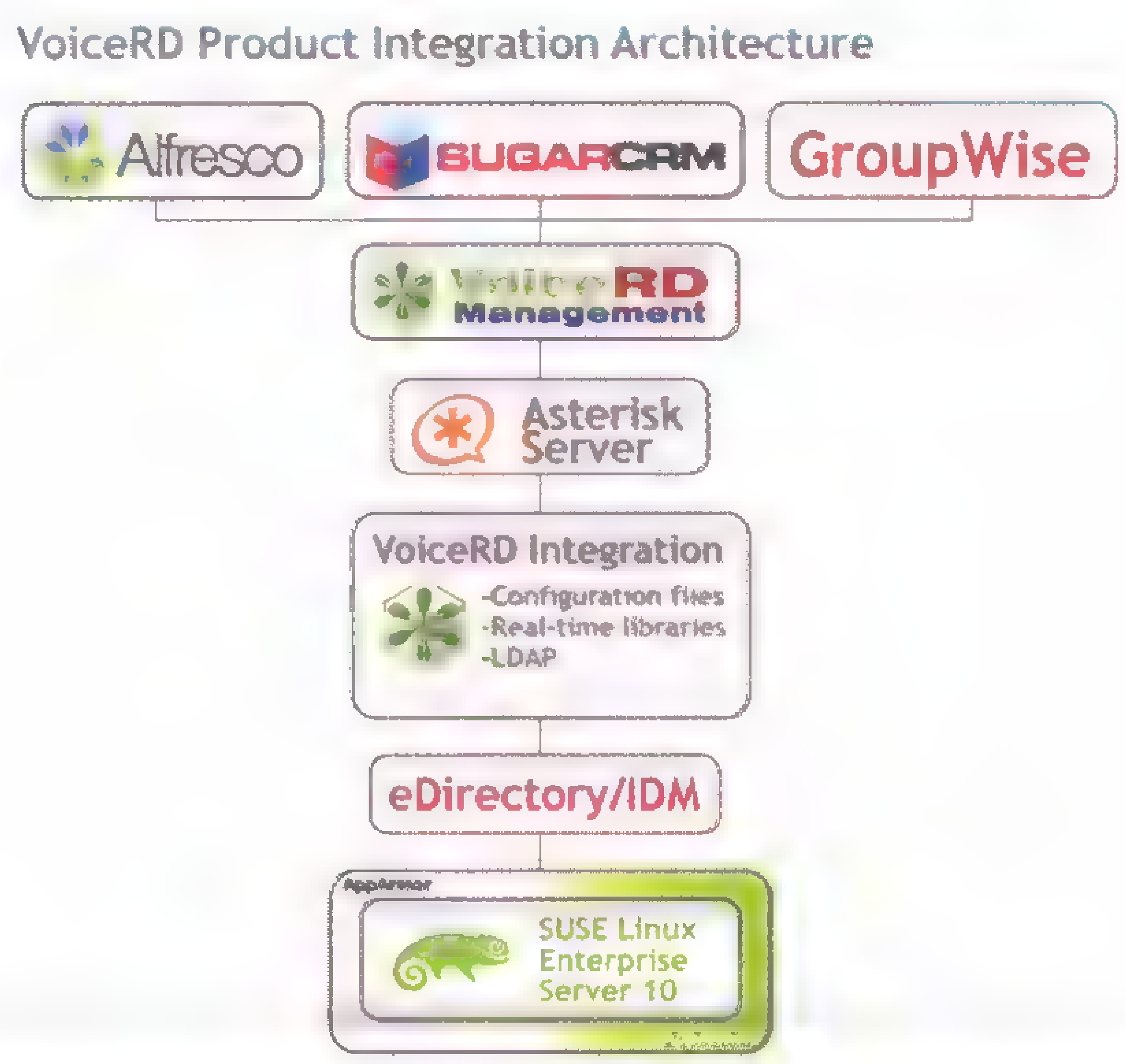
Until a couple of years ago, Novacoast ran their small business from a single office in Santa Barbara, California. When the company decided to expand its services and open offices in a number of different states, Novacoast Chief Technology Officer Adam Gray began investigating possible telecommunications options for their growing business. Adam knew that setting up and supporting new offices would be expensive. But he was still surprised by the costs required to deploy even a midrange Voice over IP (VoIP) telecommunications solution.

"It didn't take us long to figure out that the advanced telecommunications capabilities we needed were going to be way out of our price range," said Gray. "The quotes that came in from proprietary Voice over IP companies were totally unrealistic for our situation."

It was back to the drawing board for Adam and his team. But rather than settling for some barely functional low-end proprietary solution, they started investigating a number of open source possibilities. "We were already invested in open source on the data side of our organization," Gray said. "So we decided to see what open source could do for us on the telco side."

The answer was surprising. Adam and his team discovered that Asterisk, an open source VoIP PBX running on SUSE Linux

Figure 1 VoiceRD [illegible] any diffe[illegible]t open source and proprietary applica- [illegible] to create a [illegible] enterpr[illegible]e class CRM solution



Open Enterprise solutions can start virtually anywhere—from the mind of a consultant working for a small solution provider to the in-house IT department of a medium-sized retailer.

Enterprise Server, offered most of the features they needed. They quickly developed some identity management drivers to simplify the provisioning process and make the solution easier to manage.

They also started exploring ways to add more advanced capabilities, such as a soft dialer, voicemail, conference calling, call recording and so on. A few weeks and a few lines of code later, Novacoast had a remarkably sophisticated and full featured VoIP telephony solution ready to deploy in their business—built entirely on open source software.

Shortly after Novacoast developed this initial open source telecomm solution, they attended BrainShare in Salt Lake City. They were over whelmed by the interest in their new in-house VoIP solution, and they quickly realized that they had the beginnings of a promising new product.

Novacoast spent the next six months working to integrate their telephony offering with other open source applications to create a solution that combined Customer Relationship Management (CRM), telephony, document management, collaboration and much more. The solution incorporated a number of leading open source and proprietary applications, including SugarCRM, Novell eDirectory, Alfresco content management and Novell GroupWise.

Integrating all of these applications was surprisingly easy, because the Novacoast team had total access to open source code and APIs, and they were able to harness the expertise and knowledge of a knowledgeable and diverse open source community.

The end result, after a relatively short development process, was a remarkably sophisticated, capable and completely enterprise ready solution that would normally only be an option for large companies with very deep pockets.

Novacoast's success in turning their small in-house project into an impressive enterprise-class solution embodies the Open Enterprise philosophy. For Novacoast, open source has quickly become much more than just another source for low cost applications—it has actually transformed the way they approach their whole IT infrastructure. But that's really only half the story.

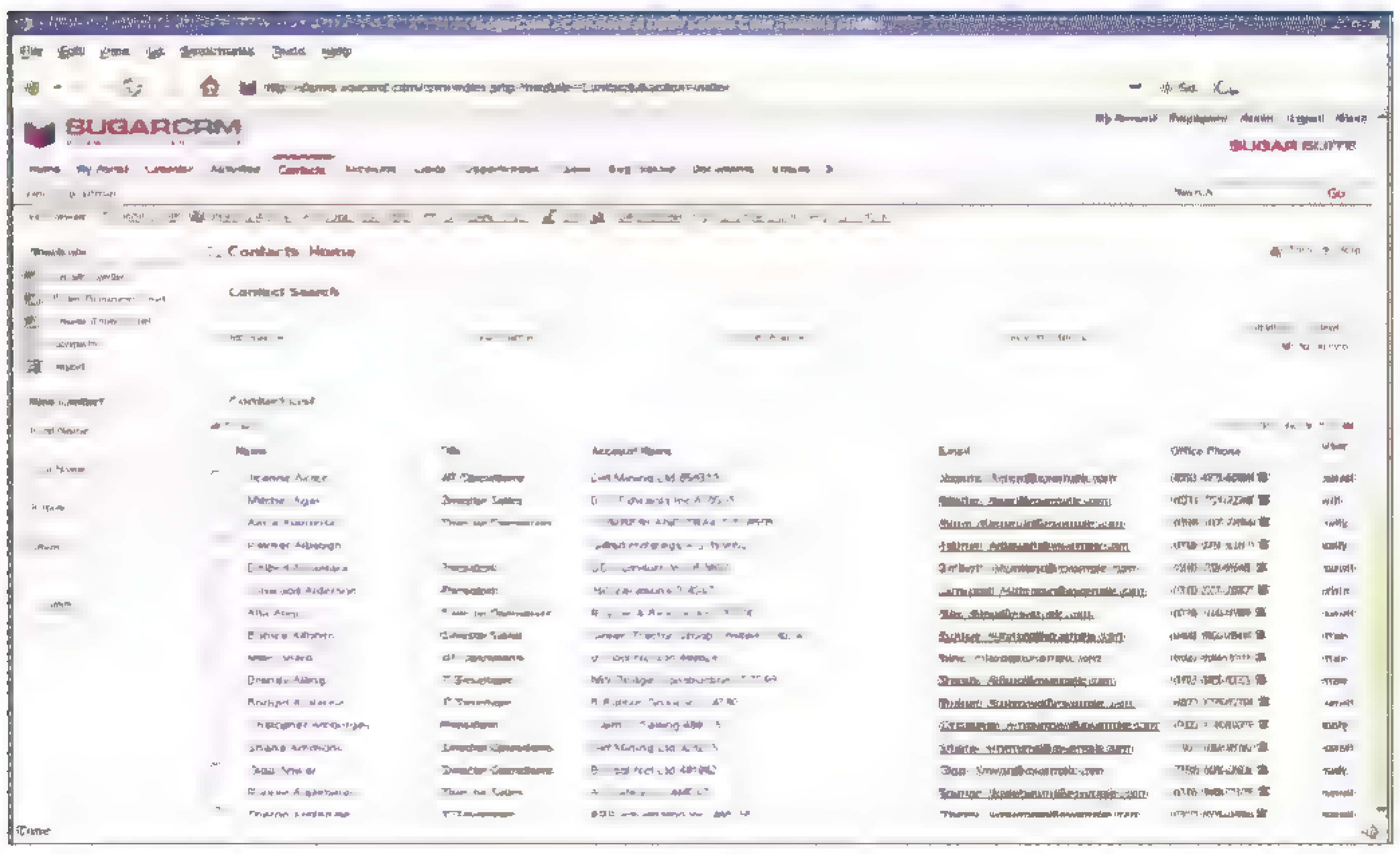
It's perhaps even more interesting to examine how they are making that solution available to other small and medium-sized businesses. Because that critical final step—turning an obscure in-house solution into a viable commercial offering—is often the most difficult, especially for small ISVs with limited resources.

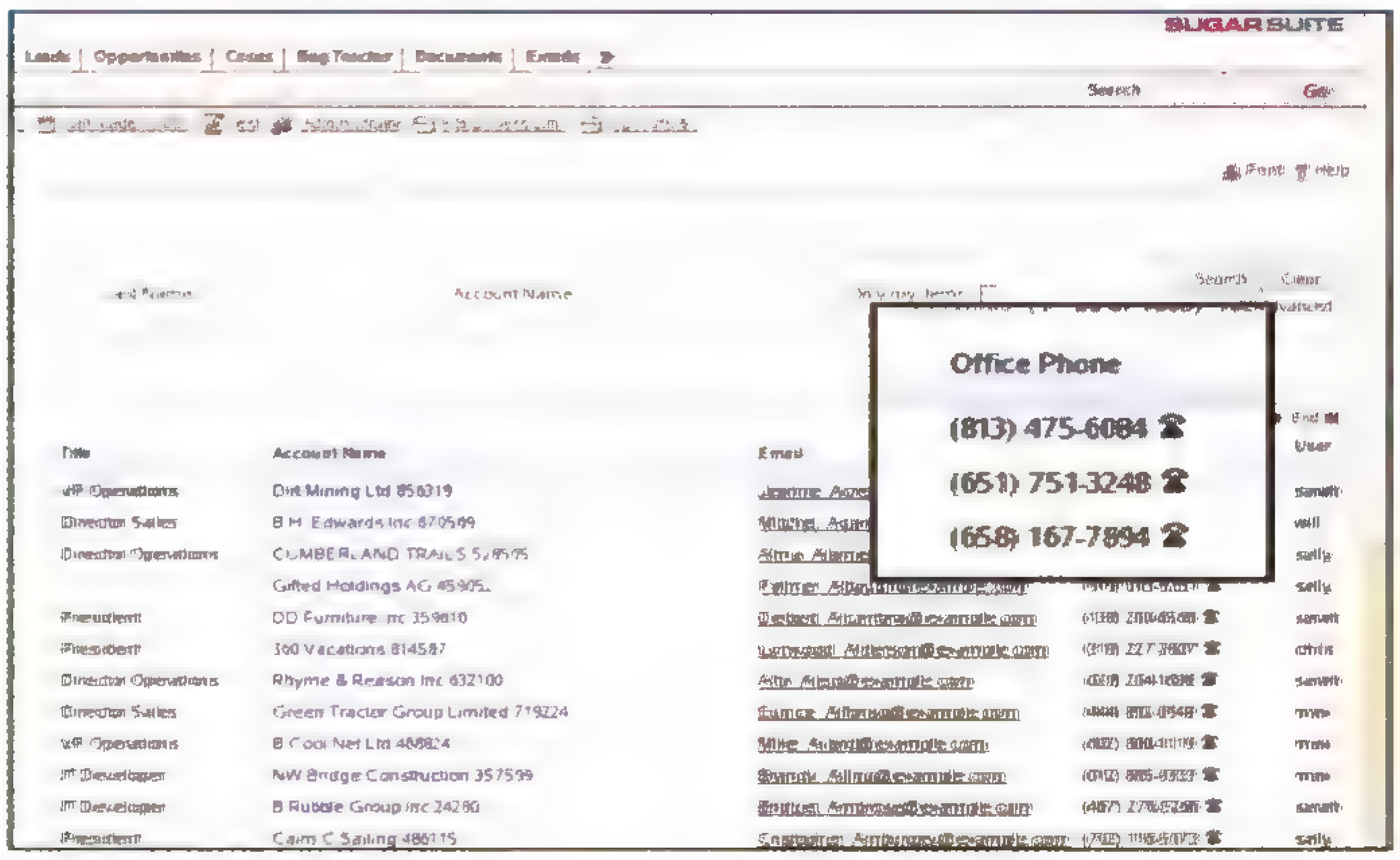
So how is Novacoast doing it? How are they managing to successfully bring their solution to a wider market of small and medium-sized businesses?

The answer is Novell Market Start.

Figure 2 *To call the customer, the sales representative simply finds the client's profile in her contact list and clicks the phone number to dial the customer. The VoiceRD dialer calls the customer and automatically logs the call in SugarCRM.*

Figure 3 *After the sales rep completes the initial call, she can click the Alfresco documents tab in SugarCRM to search her company's document store for the appropriate proposal template. Alfresco is an open source document management solution that's tightly integrated with SugarCRM*





> **Novell Market Start: Turning Great Ideas into Viable Enterprise Solutions**

The Novell Market Start program accomplishes two major goals. First, it gives smaller software developers and solution providers a practical affordable way to bring open source solutions to market — and make them available to small and medium-sized businesses around the world.

Second, it connects small and medium-sized businesses to powerful, Novell-certified applications from proven commercial open-source and Linux-based software vendors. This crucial connection gives smaller organizations a safe, practical way to harness the benefits of open source. It also enables them — for the first time — to streamline their operations and deploy the same kinds of advanced enterprise-class solutions as their largest competitors.

As Novacoast discovered, this new Open Enterprise approach is about much more than deploying the occasional open source application. It represents a whole new approach to technology that enables small and medium-sized companies to transform the way they do business — from the back office to the desktop and beyond.

By harnessing the power of open source, businesses with between 100 and 5,000 users can dramatically lower their acquisition costs, leverage the momentum of the open source movement and enjoy enterprise class functionality at a fraction of the cost of strictly proprietary solutions.

Novacoast is a prime example of how Market Start helps ISVs cover that critical "last mile" between developing a viable open source solution and bringing it successfully to market. First, Market Start gave Novacoast access to the larger Novell partner community — and helped them establish good working relationships with other technology providers.

According to Adam Gray, "Finding qualified partners can be very difficult for small solution providers. Market Start allowed us to create a very knowledgeable network very quickly and tap into a mature partner organization that's been around for decades."

Figure 4 *When the sales rep finds the correct template, she can download it and begin preparing the sales proposal in OpenOffice. Behind the scenes, Alfresco tracks different versions of the proposal. After she's done, she can attach the document to the appropriate customer account and upload it to the document store*

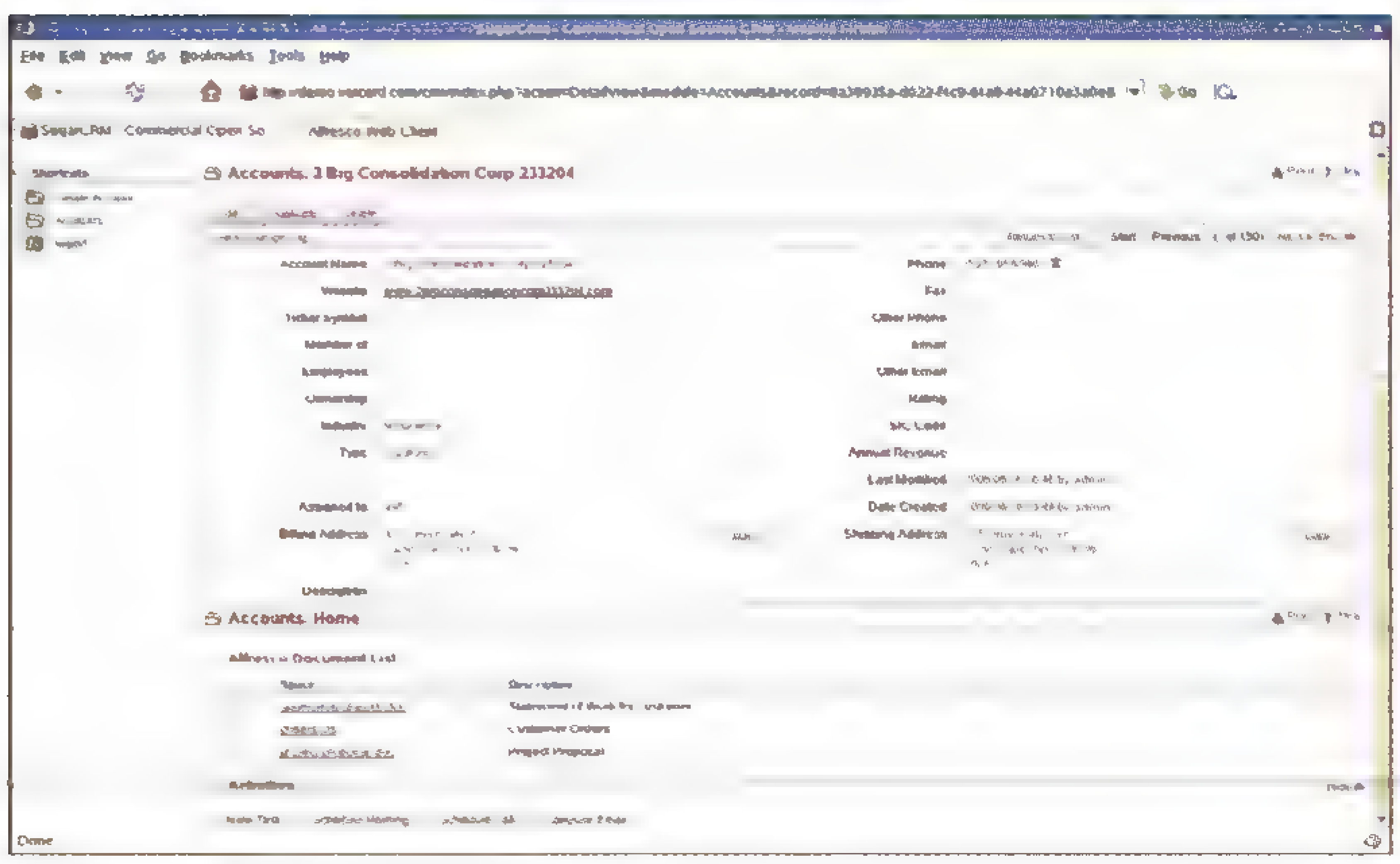
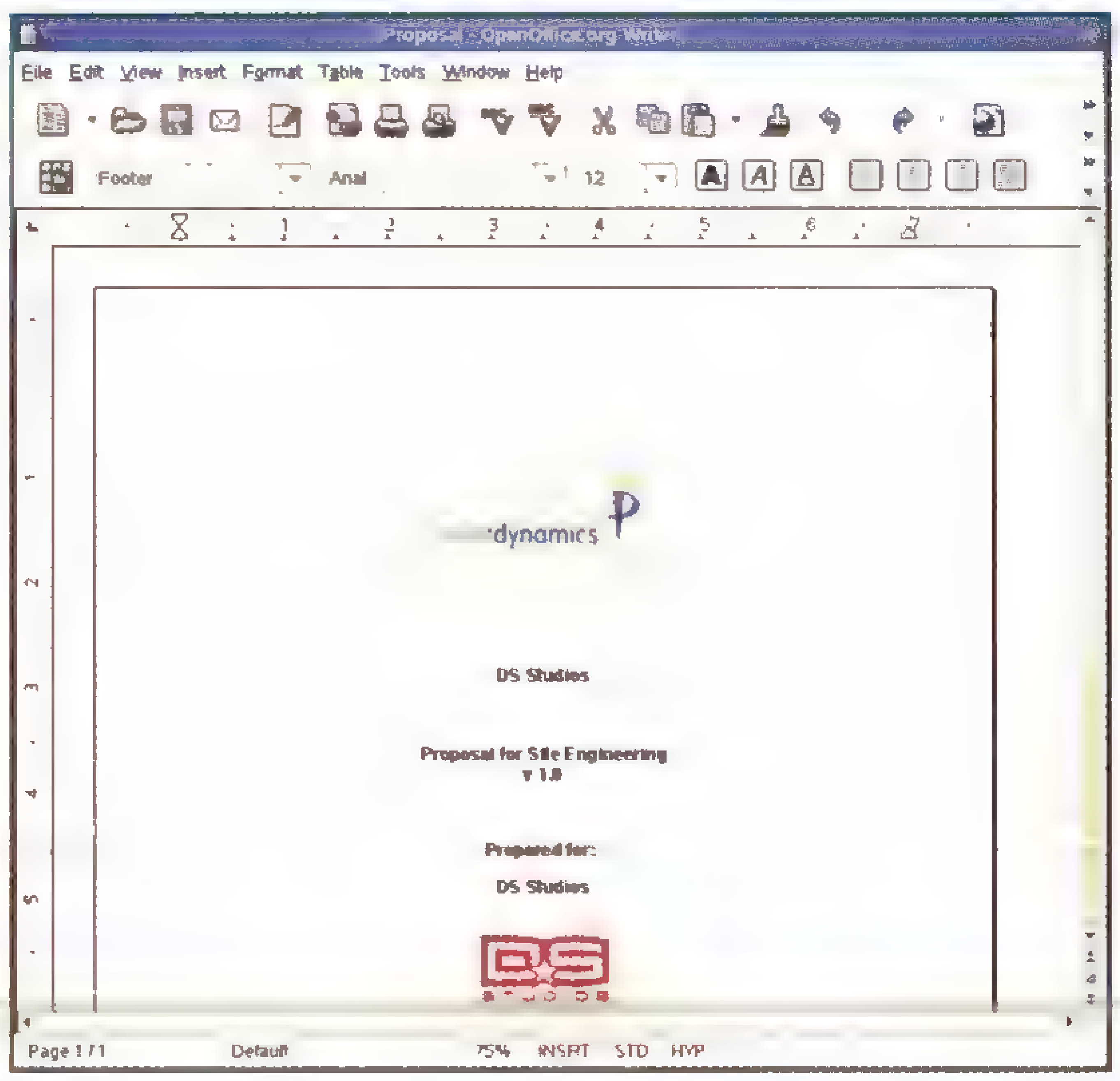


Figure 5 *Now that the first draft of the proposal is complete, the sales rep will send it to the customer. She can choose to do that either through SugarCRM's Send feature or through the company's GroupWise collaboration solution. As she sends the document, SugarCRM automatically tracks the activity and adds it to the customer record*



To learn more about the Novell Market Start program, visit **novell.com/marketstart**

Market Start also helped Novacoast refine their marketing message, position their solution effectively and tap into a wealth of marketing resources that smaller organizations normally don't have access to. With the help of the Market Start program, Novacoast has reached end users at strategic industry events, created and promoted podcasts and held a series of nationwide seminars to promote their offering.

And of course, small and medium-sized businesses can now take advantage of a complete, thoroughly tested and extremely powerful CRM and telecomm solution that provides remarkable enterprise capabilities—without proprietary license fees or expensive hardware.

> An Open Enterprise Solution in Action

Novacoast named their integrated solution VoiceRD. It's worth taking a closer look at this powerful solution, because it combines and integrates elements from so many different open source applications. VoiceRD is a prime example of what Market Start and an Open Enterprise approach to software development can accomplish for small and medium-sized businesses.

To provide a more detailed overview of the solution, we'll walk through a typical business scenario, show how the Novacoast solution works in the context of that scenario and then highlight some of the back-end technology that makes it all possible

> The Scenario

Every business, no matter how small, uses some kind of customer relationship software to manage customers and drive sales efforts—even if it's just a simple Excel spreadsheet. This scenario walks through a typical sales cycle—and shows how VoiceRD can automate and enhance the process.

The scenario begins with a customer request to create and e-mail a business proposal. To respond to the request, the sales person will clarify some details with the customer, find the appropriate proposal template in the document store, fill it out, send it to the customer, answer some questions, revise the proposal, and close the business by obtaining a signed copy of the

What Can Novell Market Start Offer Your Organization?

For small and medium-sized businesses: The Novell Market Start program can offer your business truly enterprise-class applications and solutions that are easy and inexpensive to deploy. These solutions combine the impressive cost savings and ease of integration of open source technology and the peace of mind that comes from deploying fully tested and certified commercial applications.

For independent software vendors: The Novell Market Start program simplifies and accelerates the process of bringing your open source application or solution to market. Market Start leverages Novell's PartnerNet and YES certification programs to offer you access to critical technical information, testing resources, marketing resources and go-to-market activities to make your solution successful.

For Novell channel partners: With Market Start, you can offer your small and medium-sized customers a new category of thoroughly tested, Novell-certified solutions built on open source technologies. These solutions can provide your customers with sophisticated enterprise-level capabilities—at a price they can afford.

As more ISVs explore open source and use a similar process to bring their own open solutions to market, a new world of affordable enterprise-class solutions will open up for small and medium-sized businesses.

final proposal. Of course, during the whole process, the sales rep will need to track and record every interaction with the customer and perform a number of other customer relationship management tasks.

> The User Experience

The VoiceRD user experience revolves around the SugarCRM interface. SugarCRM is a powerful, rapidly growing open source CRM application that runs on SUSE Linux Enterprise Server.

After the sales rep completes the initial call, she can click the Alfresco documents tab in SugarCRM to search her company's document store for the appropriate proposal template. Alfresco is an open source document management solution that's tightly integrated with SugarCRM.

When the sales rep finds the correct template, she can download it and begin preparing the sales proposal in OpenOffice. Behind the scenes, Alfresco tracks different versions of the proposal. After she's done, she can attach the document to the appropriate customer account and upload it to the document store.

Now that the first draft of the proposal is complete, the sales rep will send it to the customer. She can choose to do that either through SugarCRM's Send feature, or through the company's GroupWise collaboration solution. As she sends the document, SugarCRM automatically tracks the activity and adds it to the customer record.

Next, the customer reviews the sales proposal in OpenOffice and sends questions and comments through GroupWise. As these messages come in, they are automatically attached to the customer record in SugarCRM.

In one of the e mail messages she receives, the customer asks the sales rep to call him back. Again, she can click the contact in SugarCRM to dial the call. In this case the sales rep will choose to record the call. After the call is complete, the recording is automatically stored in the Alfresco document store and attached to the customer record in SugarCRM.

As the sales rep and customer e-mail different versions of the proposal back and forth, the sales rep can also use Alfresco to set up

Figure 6 *In one of the e-mail messages she receives, the customer asks the sales rep to call him back. Again, she can click the contact in SugarCRM to dial the call. In this case the sales rep will choose to record the call. After the call is complete, the recording is automatically stored in the Alfresco document store and attached to the customer record in SugarCRM.*

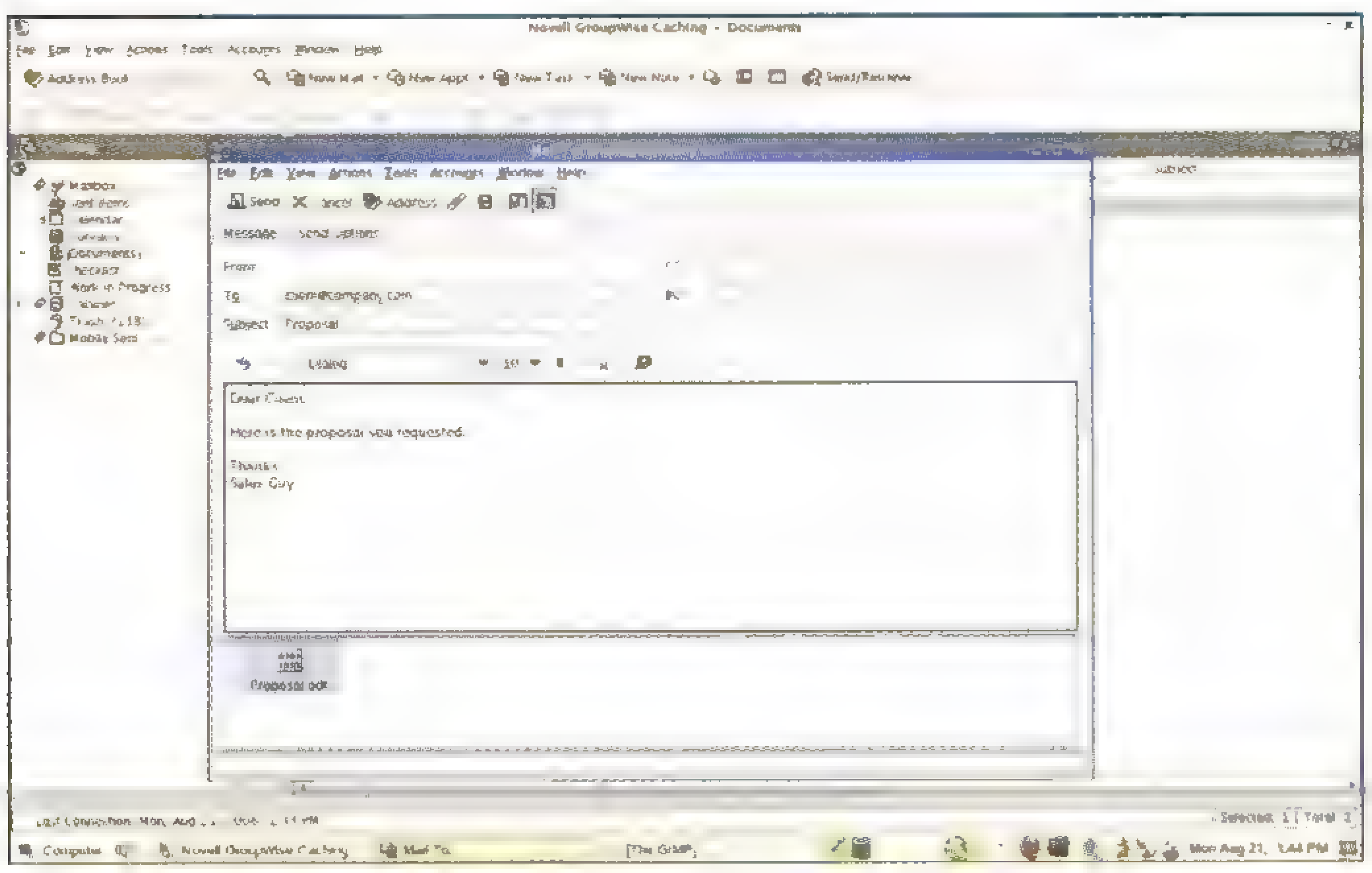
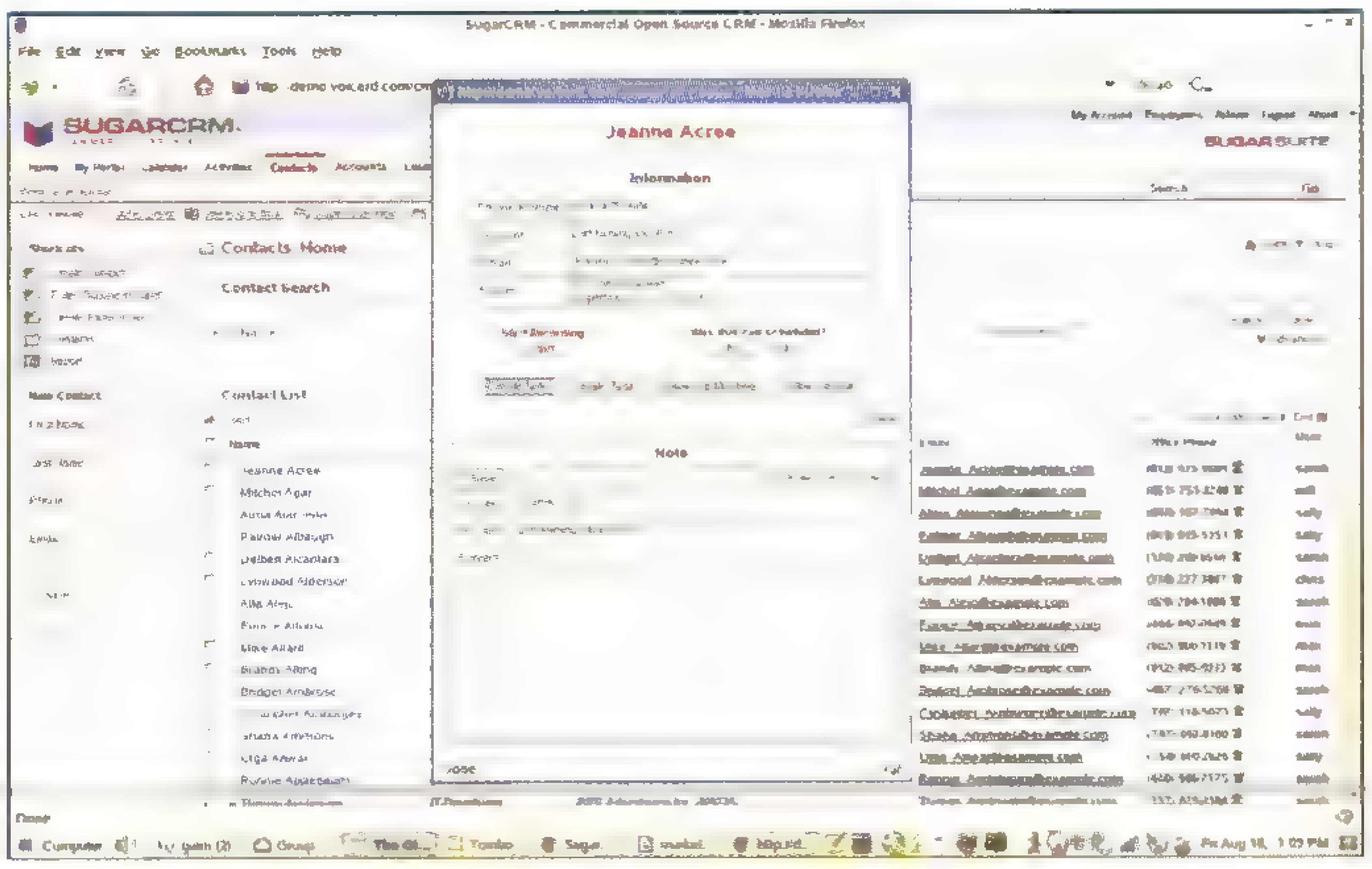


Figure 7 *As the sales rep and customer e-mail different versions of the proposal back and forth, the sales rep can also use Alfresco to set up discussion forums to discuss the proposal, manage different versions of the document and create content rules to manage the content. When they're ready to finalize the deal, the sales rep schedules a conference call with everyone involved to discuss the final proposal. She can schedule the call in SugarCRM, which automatically stays synchronized with her GroupWise calendar. She can also use SugarCRM and VoiceRD to quickly set up the call.*



The most remarkable thing about VoiceRD is that it's built primarily using open source software, which makes it affordable and practical for smaller organizations.

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After the call, the sales rep can check out the latest version of the proposal from the Alfresco document store, make the final changes and check it back into the document management system. Finally, she can go back into SugarCRM, access the customer's account, download the final proposal and use VoiceRD's fax capabilities to fax it to the customer.

When the customer faxes the approved proposal back, VoiceRD automatically converts the fax to an electronic file and adds it to the SugarCRM customer record. With the signed proposal, the deal has been successfully closed.

This quick walkthrough shows how VoiceRD automates and streamlines virtually every aspect of the sales process. Rather than distracting sales representatives with different systems, interfaces and applications, this sophisticated enterprise-class solution allows the sales force to focus on closing business and adding value for customers. And of course, the most remarkable thing about VoiceRD is that it's built primarily using open source software, which makes it affordable and practical for smaller organizations.

> The Technology

It's obvious that many different applications and technology components are working closely together to make the VoiceRD solution work. Here's a breakdown of some of the technology that's working behind the scenes.

Start Building Your Open Enterprise

VoiceRD is an excellent example of what's possible when smart, innovative ISVs and solution providers such as Novacoast embrace open source, adopt an Open Enterprise philosophy and work with Novell to bring their open source solutions to market.

But it's certainly not the only example. As more ISVs explore open source and use a similar process to bring their own open solutions to market, a new world of affordable enterprise-class solutions will open up for small and medium-sized businesses. And thanks to the Market Start program, those businesses will be able to feel completely confident that these solutions are tested, certified and completely viable for their organizations.

In the end, this Open Enterprise model means new opportunities for everyone. ISVs can leverage Novell's market presence and mature partner and certification programs to deliver open source solutions to the businesses that need them. And small and medium-sized businesses finally have a trusted source for commercial open source solutions that deliver enterprise-class functionality at a tiny fraction of the cost of proprietary solutions.

You can learn more about how Novell and its partners are promoting Open Enterprise solutions by visiting *novell.com/marketstart*. To see this solution in action, attend the SUSE Linux Enterprise 10 Road Show, coming soon to a city near you. You can learn more about locations and dates for the Road Show—and reserve your seat—by visiting *novell.com/yourlinuxtour*.

GroupWise™ Solutions GroupWise™

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In an Open Enterprise environment, developers have instant, unencumbered access to the standard code and APIs they need to integrate applications quickly.

Novell

The Novacoast VoiceRD solution starts with a number of key platform technologies from Novell. The whole solution runs on SUSE Linux Enterprise Server 9 or 10. It incorporates Novell eDirectory and other core identity management technologies. It leverages GroupWise to provide key communication and collaboration capabilities. And it relies on AppArmor to secure the solution and keep data safe and protected.

Asterisk

It's certainly no secret that VoIP holds a great deal of promise as a low-cost, next-generation telecommunication solution. But it has also been notoriously difficult and expensive to manage and deploy in a business setting. VoiceRD resolves these management issues by combining Asterisk, the leading open source VoIP PBX software with Novell identity management technology. With VoiceRD, you can tie directly into your identity management solution when you set up the system. This makes it very easy to provision employees with telecommunication services—and treat your telephone system like any other manageable network device.

SugarCRM

SugarCRM is a third-generation customer relationship management (CRM) application that adapts to virtually any business environment. As the VoiceRD solution demonstrates, SugarCRM's unique open source architecture makes it easy to adapt advanced CRM capabilities to specialized business processes, add customized functionality and integrate a wide range of different applications. SugarCRM is available in a number of different deployment options, including on-demand, on-premise and appliance-based solutions. According to Jacob Taylor, one of the three co-founders of SugarCRM, this open and flexible approach makes SugarCRM the ideal architecture and interface for combining telecom, content management, collaboration and other advanced capabilities into enterprise-class solutions like VoiceRD.

Figure 8 *After the call, the sales rep can check out the latest version of the proposal from the Alfresco document store, make the final changes and check it back into the document management system. Finally, she can go back into SugarCRM, access the customer's account, download the final proposal and use VoiceRD's fax capabilities to fax it to the customer.*

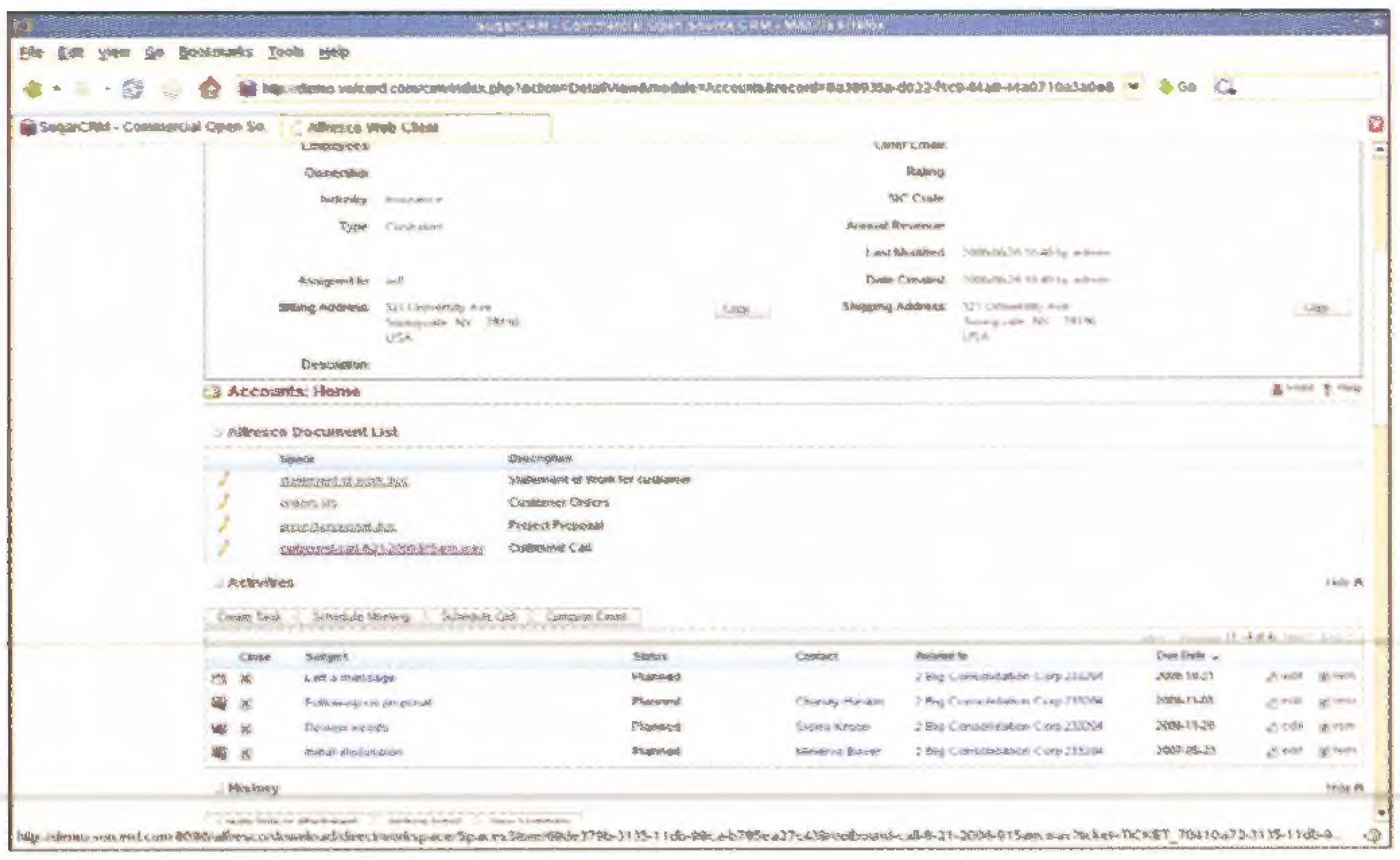
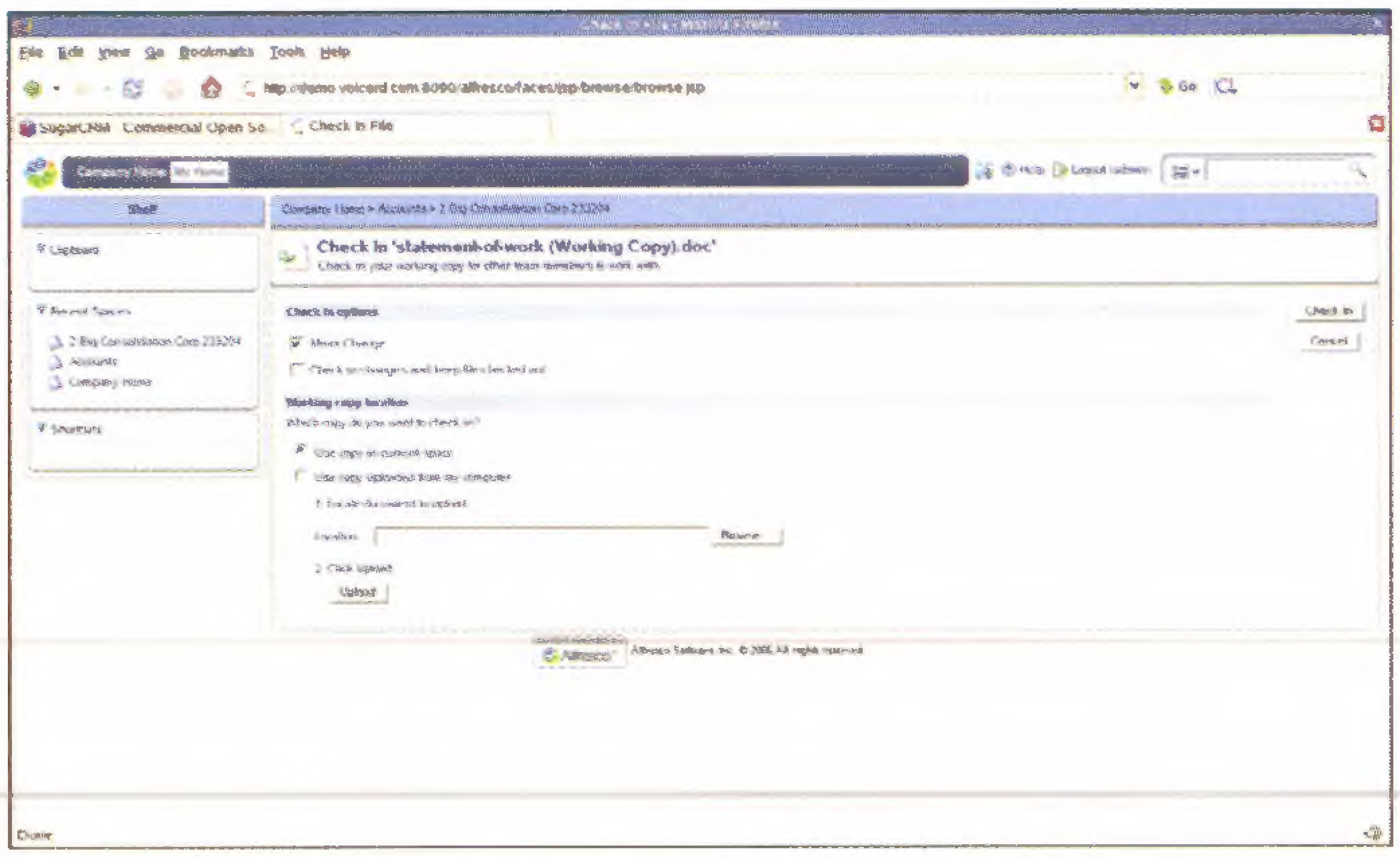


Figure 9 *When the customer faxes the approved proposal back, VoiceRD automatically converts the fax to an electronic file and adds it to the SugarCRM customer record. With the signed proposal, the deal has been successfully closed.*



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"Open source software brings this great community of innovators together to meet business needs."

"Open source software brings this great community of innovators together to meet business needs," Taylor said. "When you start combining different products, such as Alfresco for document management, Asterisk for phone solutions and SugarCRM for CRM, you quickly end up with a solution that's incredibly powerful, very easy to maintain, very easy to deploy, and has a great offering of support services around the world."

Alfresco

Alfresco is an open source content management application that manages incoming and outgoing calls, keeps track of quotations, proposals, invoices and other documents, performs version tracking and even manages faxes and recorded phone calls. According to Matt Asay, the vice president of business development at Alfresco, these types of document management capabilities are an essential part of any successful CRM solution. "You simply can't have a complete, effective CRM application without content management," said Asay. "With VoiceRD, sales people no longer have to think of their phone system, their CRM application and their document management application as separate systems. They all become part of a unified, integrated whole that enables them to provide better service and add more value for their customers."

> Bringing All the Pieces Together

The VoiceRD solution obviously relies on complex interactions between all of the different proprietary and open source applications that make up the solution. In the past, this type of sophisticated integration was painful, time consuming and prohibitively expensive for most smaller businesses. But in an Open Enterprise environment, developers have instant, unencumbered access to the standard code and APIs they need to integrate applications quickly. And of course, they can leverage the expertise and advice of a large open source community to provide oversight, feedback and suggestions.

Novacoast benefited from this expertise by making the basic SugarCRM plug-ins and modules that drive their solution available to the open source community. As a result, they've received invaluable feedback from more than 500 users who have downloaded their integration modules. According to Adam Gray, this community assistance often went far beyond basic feedback. "We've actually had people in the community step up to the plate with actual code to fix problems and improve the software," said Gray. "All those different perspectives—from all over the world—were invaluable." N

Anatomy of the Novacoast VoiceRD Solution

Thanks to the advantages of open source development—combined with support from the Novell Market Start Program—Novacoast has been able to tightly integrate the following open source applications to create a powerful, commercially viable solution:

- Novell SUSE Linux Enterprise Server 9 and 10
- Novell eDirectory and identity management capabilities
- Novell GroupWise collaboration solution
- Asterisk—an open source PBX software application
- SugarCRM—an open source customer relationship management application
- Alfresco—an open source document and content management application

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- Policy-driven automation of patch updates, BIOs, and software and security packages
- Novell ZENworks products help reduce costs: Average cost savings were found to be $355,028 per 100 users, with an average three-year return on investment (ROI) from deploying ZENworks of 1,012%[2]

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[1]ZENworks Linux Management was judged the best systems management tool at the LinuxWorld Conference and Expo (2004, 2005).

[2]IDC, Managing Linux Operational Costs with Novell ZENworks, an IDC White Paper sponsored by Novell, July 2005. Savings were reported by IT customers with Novell ZENworks products interviewed by IDC.

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